EFFECTIVENESS OF SCALP ACUPRESSURE UPON LABOUR PAIN AND COPING AMONG PRIMIPARTURIENT WOMEN

By

M. KANAGA DURGA

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2012

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DECLARATION

I hereby declare that the present dissertation entitled **"Effectiveness of scalp acupressure upon labour pain and coping among primiparturient women"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan,** M.Sc (N)., M.Phil., Ph.D., Principal, Apollo College of Nursing, **Prof. Mrs. Lizy Sonia**, Vice Principal, Apollo College of Nursing, Chennai. I also declare that the material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other university.

II Year M.Sc (N)

ACKNOWLEDGEMENTS

I thank **God Almighty** for showering his blessings upon me and guidance in the matters at hand and for clearly showing me the way to conduct my work with a spirit of joy and enthusiasm throughout my study.

I dedicate my heartfelt thanks and gratitude to our esteemed leader and my clinical guide **Dr. Latha Venkatesan**, M.Sc (N)., M.Phil., Ph.D., Principal, Apollo college of Nursing for her tremendous help, continuous support, enormous auspice, valuable suggestions and tireless motivation to carry out my study successfully. I also extend my thanks to my research guide **Prof. Mrs. A. Lizy Sonia,** M.Sc (N), Vice principal, Apollo college of Nursing for her unbroken support throughout my study.

I owe my special thanks to **Prof. Mrs. Vijaya Lakshmi**, Research coordinator, Apollo college of Nursing for her prolonged patience and continuous guidance in completing my study. My special gratitude to **Dr. Nirmala Jayasankar**, F.R.C.O.G., M.D., D.G.O., Apollo First Med Hospital, Chennai for her valuable suggestions and opinions towards the study.

I thank the administrator **Sr. Magdaline**, M.Sc (N) of St. Antony's Hospital for permitting me to conduct my study in their esteemed institution and providing continuous encouragement throughout the study. With special reference I thank **Dr. E. Vijaya Kumar,** MPT., MD(Acu)., DYT., FIMT., MIAP., Founder, Institute of Alternative and Complementary Therapy, Chennai for rendering me training in scalp acupressure to proceed with my study.

My genuine gratitude to **Mrs. Sathya Nesa Lawrence**, M.Sc (N)., Reader and Course coordinator for her consecutive ideas and enormous concern. I also extend my special thanks to all the **Faculties in the Department of Obstetrics and Gynecological Nursing** for rendering their valuable guidance and ideas in completing my study.

With the special word of reference, I thank all the **experts** for validating my tool and offering worthy suggestions to make it effective. It's my appurtenance to thank all the **HODs, teaching and non-teaching faculties** and my **colleagues** who helped me directly or indirectly in carrying out my study.

A note of special thanks to the **librarians** of Apollo college of Nursing and The Tamilnadu Dr.M.G.R Medical University for rendering their kind help in doing my study. I also thank **Mr. A. Naveen** M.A., M.Phil & **Ms. A. Kavitha** M.A., B.Ed for editing my content in English and Tamil respectively.

I thank all the **participants** of my study for their wonderful participation and cooperation without whom I could not have completed my study. My special gratitude to the members of **WINN xerox** in helping me to proceed with my paper materials.

Last but not least. I am always thankful to my **parents and family members** for their support in all times of ups and downs, their prayers, their blessings and their help rendered to me in completing my study successfully.

SYNOPSIS

An Experimental Study was conducted to Assess the Effectiveness of Scalp Acupressure upon Labour Pain among Primiparturient Mothers in the First Stage of Labour at St. Antony's Hospital, Chennai.

The objectives of the study

1. To assess the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient mothers.
2. To compare the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient mothers.
3. To determine the level of satisfaction upon scalp acupressure among experimental group of primiparturient mothers.
4. To find out the association between the selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient mothers.
5. To find out the association between the selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient mothers.

The conceptual framework was made based on Swanson's Caring theory. The variables of the study were Scalp acupressure and labour pain. Null hypothesis were formulated. The level of significance selected was $p<0.05$. An extensive review of literature

was made based on the opinions of the experts. An experimental study of pre-test and post-test design was used. The study included 60 primiparturient mothers who were selected by simple random sampling. The study was conducted at St. Antony's Hospital, Chennai.

Demographic variable proforma, Obstetric variable proforma, Modified pain intensity scale, Pain coping scale, Modified WHO partograph and Rating scale on satisfaction of scalp acupressure were the various tools used by the researcher. The validity was obtained from various experts and found to be highly reliable. The main study was conducted after the pilot study.

The level of labour pain, coping and feto-maternal parameters were assessed for the control and experimental group of primiparturient mothers. The scalp acupressure was provided at the shenghi area of scalp for four minutes of which 30 seconds at each point for the experimental group. Then the level of labour pain, coping and feto-maternal parameters were assessed again for both the groups. The level of satisfaction on scalp acupressure was assessed among the experimental group of primiparturient mothers after the labour. The data obtained were analyzed using Descriptive and inferential statistics.

Major findings of the study

- Most of the mothers in the control and experimental group were between the age group of 20 – 24 years (66.7%, 66.7%), homemakers (90%, 83.3%) and moderate workers (93.3%, 83.3%) respectively. Majority of the mothers in both the control and experimental group belonged to a nuclear family (73.3%, 73.3%) and received no previous knowledge about acupressure (80%, 83.3%) and all the mothers in both the

group were non-vegetarians (100%, 100%).

- Majority of the mothers in the control and experimental group were in the gestational age of 39 – 40 weeks (93.3%, 96.7%) and had more than five antenatal visits (90%, 93.3%) respectively. All the mothers in both the group had no pain management (100%, 100%) and all in the experimental group had normal vaginal delivery (100%, 100%). Majority of the mothers in the experimental group had duration of first stage of labour less than ten hours (93.3%), duration of second and third stage of labour less than one hour (100%) and less than ten minutes (100%) respectively.
- The mean and standard deviation of level of labour pain was higher after therapy (M=8.95, SD=0.83) when compared with labour pain before therapy (M=7.4, SD=0.51) in the control group, whereas the mean and standard deviation of the level of labour pain was lower after therapy (M=5.63, SD=0.66) when compared with labour pain before therapy (M=7.86, SD=0.34) in the experimental group. This was statistically proven at $p<0.001$ level of confidence. Hence the null hypotheses H_{01} was rejected.
- The mean pain level in all the eight observations of the control group before scalp acupressure (M=5.1, SD=0.66 in first observation to M=9.86, SD=0.36 in eighth observation) was lesser when compared with the experimental group (M=5.83, SD=0.59 in first observation to M=10, SD=0 in eighth observation), whereas the mean pain level in all the observations of control group was higher after scalp acupressure(M=5.7, SD=0.87 to M=9.79, SD=0.42) when compared with the experimental group (M=4.4, SD=0.56 to M=7, SD=0) of primiparturient mothers in the first and eighth observation respectively. Hence the null hypotheses $H_{01}$was rejected.

- The mean and standard deviation of coping level in the control group was lower after therapy (M=2.00, SD=1.01) than before therapy (M=5.36, SD=0.23) and the mean and standard deviation of coping level in the experimental group was higher after therapy (M=6.01, SD=0.96) compared to before therapy (M=1.9, SD=0.22) which was significant at $p<0.001$ level. Thus the null hypotheses H_{01} was rejected.
- The mean coping level of control group (M=3.8, SD=1.18 in first observation to M=0.33. SD=0.9 in eighth observation) was reduced after scalp acupressure when compared with experimental group (M=4.9, SD=0.84 to M=3, SD=0) whereas the mean coping level of primiparturient mothers in all the observations of control group (M=6.77, SD=0.56 to M=1.47, SD=1.18) was higher than the experimental group (M=3.67, SD=0.47 to M=0, SD=0) before scalp acupressure in first and eighth observation respectively. Thus the null hypotheses H_{01} was rejected.
- The mean and standard deviation of the frequency of uterine contraction in the experimental group was lower after therapy (M=3.2, SD=0.14) when compared to before therapy (M=4.14, SD=0.22) and uterine contraction duration was higher after therapy (M=49.5, SD=3.51) compared to before therapy (M=41.4, SD=3.21) at $p<0.05$ and $p<0.001$ level of significance for control and experimental group respectively. The mean cervical dilatation in the control group (M=6.49, SD=0.44) was lesser than the experimental group (M=7.44, SD=0.26). Hence the null hypotheses H_{01} was rejected.
- Majority of the mothers were highly satisfied 96.7% with scalp acupressure during the first stage of labour and none of them reported low satisfaction.
- No significant association was found between selected demographic and obstetric variables with the level of labour pain, coping and feto-maternal parameters before and

after the scalp acupressure in the control and experimental group of primiparturient mothers. Thus the null hypotheses Ho_3 was retained.

The above finding reveals that scalp acupressure used by the researcher during the first stage of labour among primiparturient mothers were effective in reducing the perception of labour pain and increasing the coping level during the labour without affecting the feto-maternal parameters.

Recommendations

- The same study can be conducted with larger number of samples.
- A comparison can be made between primi and multi gravidae.
- A comparison can be made with different stages of labour.
- The same study can be conducted at different setting.
- A comparison can be made between different types of alternative and complementary therapies

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CHAPTER I

INTRODUCTION

Background of the Study

God's interest in the human race is

nowhere better evidenced than in

"Obstetrics"

-Martin. H. Fischer

Pregnancy is an intense time in the life of an expecting mother filled with physical and emotional changes. For many pregnant women, anticipated labour pain is a major concern during their pregnancy. Decisions they make about pain relief measures can have a profound effect on their experience and memories of labor, procedures, medications or restrictions that may become necessary for them or their baby's well-being after the birth. For these reasons, they will want to explore their labor pain relief options well in advance and make informed choices based on the best and latest research.

The experience of labor pain varies markedly from woman to woman. It can also vary for the same woman in different parts of the labor and from one labor to another. In everyday life, physical pain, especially intense pain, is usually a warning that something is wrong in our body. But the pain of labor and birth is not a sign of danger, nor is it a symptom of injury or illness. It is a sign that the mother's body is working hard to birth their baby.

An average birthrate for the whole world in the year 2008 was 19.95/year/1000. There are approximately 6 million pregnancies and 4 million births in United States every

year. In India, 128.9 million births occur per year. The birthrate in Tamilnadu and Chennai in the year 2009 was 16.3/1000 births and 15.3/1000 births respectively. Thus all the women who give birth to a baby necessitate some type of pain relief methods (Department of Health and Family Welfare, 2009).

During labour, the woman experiences some degree of stress as her system responds to the physical changes that prepare her to give birth. Nearly every woman in labour experiences some degree of discomfort. Perception of pain is highly unique and differs from one individual to another though the intensity of pain stimuli is same. Non-pharmacological and pharmacological pain management strategies provide women with specific techniques they can use to cope with the discomfort of labour, thereby increasing their feelings of control.

Pharmacological methods of pain management include epidural or spinal medication, narcotic analgesics and other non-pharmacological measures include continuous labour support, hydrotherapy, ambulation and position changes, acupuncture and acupressure, attention focusing and imagery, therapeutic touch and massage, breathing techniques and effleurage. Non-pharmacological measures are usually simple, safe and inexpensive to use. Among the non-pharmacological measures available, acupressure is widely used in Obstetrics as it is a safe and effective alternative to pharmacological method of pain relief in a hospital. Stimulation of specific labour acupressure points for pain relief has been shown to increase the release of endorphins which are extremely effective natural painkillers that also improve the body's performance and promote positive feelings.

Anderson & Johnson (2005) conducted randomized controlled studies to identify the use of complementary and alternative therapies for obstetric treatment and health promotion. Fifty–four articles assessing a variety of health modalities meeting the criteria were included. The study concluded that Complementary and Alternative medicine interventions have evidence of effectiveness for use in obstetric patients.

In the year 2007, Smith et al., conducted a study to examine the effects of acupuncture and acupressure for pain management in labour on maternal and perinatal morbidity. The findings concluded that acupuncture and acupressure were beneficial for the management of pain during labour and women receiving acupressure reported less anxiety compared with women in the control group ($p<0.05$).

During the clinical postings, the researcher found that women suffered with pain and were in need of some type of pain relief measures during labour. As the pain management by pharmacological method may affect the condition of the baby or the mother, non-pharmacological method which is safe for both was preferred by the researcher for pain relief. Though there are various types of non-pharmacological measures available to relieve pain, acupressure was found to be safe, inexpensive and effective for the pain relief and coping during labour. Thus the investigator is interested in using acupressure in the scalp for labour pain among the parturient women.

Need for the Study

Pregnancy is one of the most exciting and important event in each woman's life involving many factors that should be considered in advance such as changes in diet, habits and lifestyle that may be worked out with the doctor before, during and after the pregnancy. Natural childbirth aims to maximize the innate birth physiology and laboring movement of healthy, well-nourished women. For the mother, a natural birth increases the probability of a healthier postnatal period and an easier recovery due to fewer post-intervention discomforts. A natural birth also reduces the likelihood of needing to separate the infant from its mother after birth. Thus most of the woman likes to undergo a natural child birth due to its advantages.

A national audit conducted in India from 2004-2006, found that only 47% of deliveries avoided medical intervention of any sort that includes avoiding the use of instruments, induction, epidural or general anaesthetics (National Health Service, 2007). Other findings of the audit included over 20% of deliveries were induced, 23.5% of deliveries were by caeserean section, more than half of them were emergency caesareans and 11% were instrumental deliveries. Women with spontaneous deliveries spent on average one day in hospital after delivery, women with instrumental deliveries one or two days and women with caeserean deliveries between two and four days, 14% of women had an episiotomy. Thus the length of hospital stay for the women undergoing labour can be reduced by promoting natural mode of delivery.

A variety of non-pharmacological methods are implemented during natural childbirth to aid the mother. Pain management techniques other than medication include hydrotherapy, massage, relaxation therapy, hypnosis, breathing exercises, vocalization, visualization, mindfulness and water birth. When most people think of traditional Chinese forms of treatment, acupuncture comes to mind first and foremost. Acupressure massage is another form, however, that is very similar to acupuncture and can also help in relieving pain and discomfort and the studies show that the technique is very effective. In acupressure therapy, pressure is applied on certain points located on palms and soles and various parts of the body. The pressure given on points stimulates all the organs of the body to prevent disease and to maintain good health.

Alternative medicine is a major enterprise in India. Major claims have recently been made for alternative medicine. In November 2009, the government's Ministry of Health and Family Welfare announced the steps it would be taking to promote 'Indian Systems of Medicine' in the country, including spending RS. 922 crores on the promotion of AYUSH that includes Ayurveda, Yoga & naturopathy, Unani, Siddha and Homoeopathy. The Department continued to lay emphasis on upgradation of AYUSH educational standards, quality control and standardization of drugs, improving the availability of medicinal plant material, research and development and awareness generation about the efficacy of the systems domestically and internationally.

A randomized controlled trial (2010) was conducted at Public Hospital in India by Shenoy et al., to evaluate the effect of acupressure administered during the first stage of

labour on nulliparous women ratings of labour pain.71 women received acupressure at SP6 point on both legs during contractions over a 30 minute period. Experience of labour pain was assessed by visual analogue scale before treatment, immediately after treatment and at 30, 60 and 120 minutes after treatment. A reduction of labour pain was found in the acupressure group and was most noticeable immediately after treatment ($p<0.001$). The findings reported that acupressure seems to reduce pain during the active phase of labour in nulliparous women giving birth.

Chung et al., in the year 2008 conducted a study to determine the effect of L14 and BL67 acupressure on labor pain during the first stage of labor. A total of 127 parturient women were randomly assigned to three groups. Each group received only one of the following treatments that include L14 and BL67 acupressure, light skin stroking or no treatment. There was a significant difference in decreased labor pain in the first group compared with the two others ($p<0.01$).

With the increased need of pain relief and decreased coping among the parturient women in the present world, it becomes the responsibility of the nurses to provide some type of pain relief measures. Though there are various types of pain relief measures, the method chosen should not affect the labour, condition of the mother and the baby and should decrease pain perception. As there are various studies which give the evidence in effectiveness of acupressure during labour, the researcher has chosen scalp acupressure to provide relief from pain and promote coping for the parturient women during labour.

Statement of the Problem

An Experimental Study to Assess the Effectiveness of Scalp Acupressure upon Labour pain among Primiparturient Women in the First Stage of Labour at St.Antony's Hospital, Chennai.

Objectives of the Study

1. To assess the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
2. To compare the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
3. To determine the level of satisfaction upon scalp acupressure among experimental group of primiparturient women.
4. To find out the association between the selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.
5. To find out the association between the selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.

Operational Definitions

Effectiveness

It refers to the outcome of an intervention assessed in terms of change in the level of

labour pain, coping and feto-maternal parameters which is measured by the researcher using standardized tools.

Scalp acupressure

The pressure is given in the Shenghi area of scalp (having 8 points) with two thumb fingers for 4 minutes of which 30 seconds at each point every one hour after 4cm of cervical dilatation till the cervix is completely dilated (10cm).

Labour pain

The pain experienced and verbalized by the mother during labour on pain intensity scale measured by the investigator.

Feto-maternal parameters

The parameters which are measured by the researcher through modified WHO Partograph namely fetal heart rate, maternal heart rate, maternal blood pressure, duration and frequency of uterine contractions per 10 minutes and cervical dilatation.

Primiparturient women

The normal pregnant women who are in labour for the first time.

Assumptions

The study assumes that

- Pain in labour is progressive in nature.
- The experience of labour pain varies markedly from woman to woman.
- Natural childbirth aims to maximize the innate birth physiology and labouring movement of healthy well nourished women.

- Non-pharmacological measures are simple, safe and inexpensive which can help a woman to relax during contractions.
- Acupressure is a way of accessing and releasing blocked or congested energy paths in the body.
- Stimulation of specific labour acupressure points for pain relief increases the release of endorphins which are effective natural painkillers.

Null Hypotheses

Ho_1 There will be no significant difference in the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure between the control and experimental group of primiparturient women at the level of $p<0.05$.

Ho_2 There will be no significant association between selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women at the level of $p<0.05$.

Ho_3 There will be no significant association between selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women at the level of $p<0.05$.

Delimitations

The study was limited to primiparturient women who were

- admitted at St.Antony's Hospital
- willing to participate in the study
- in the active and transition phase of labour

- able to understand and speak either Tamil or English
- between 37 – 42 weeks of gestation

Conceptual Framework

Conceptual Framework is an interrelated concepts or abstractions assembled together in rational scheme by virtue of their relevance to a common theme (Polit, 2010).

Swanson's caring theory was used as conceptual framework in this study to describe the relationship and focus of the study which includes knowing, being with, doing for, enabling and maintaining belief through which interaction can be improved and maintained between the nurse and the primiparturient women.

Swanson's theory was used in this study as it explains about knowing of the primiparturient women by the nurses, to be with the women during labour, to do interventions for the mother as needed, to enable the mother to maintain her health and to maintain belief of the primiparturient women. The components of this theory are as follows:

Knowing

This is a striving to understand an event as it has meaning in the life of the other. Here the need of the parturient women which is difficulty in coping with pain is understood by the researcher.

Being with

Being with means being emotionally present with the other. Thus the nurse researcher was emotionally present with the mother and provided psychological support.

Doing for

This refers to doing for the others as she would do for the self if it were all possible. Here the intervention of scalp acupressure is provided for the mother in order to help her in having decreased pain perception and increased coping with the labour pain which she was unable to do on her own.

Enabling

Enabling is facilitating the others to pass through life transitions and unfamiliar events. Here the researcher facilitates the primiparturient women to cope with the pain and to pass through the transition phase of labour.

Maintaining belief

This is sustaining faith in others capacity. Here the belief of achieving pain coping with scalp acupressure was maintained among the primiparturient women.

Feed back

The outcome may either be satisfactory or non-satisfactory in reducing pain perception. If the pain is reduced it means that the therapy was effective and if not reduced, it needs rearrangement of the therapy.

Researcher used this theory as it was found appropriate to assess the effectiveness of scalp acupressure during first stage of labour among the primiparturient women.

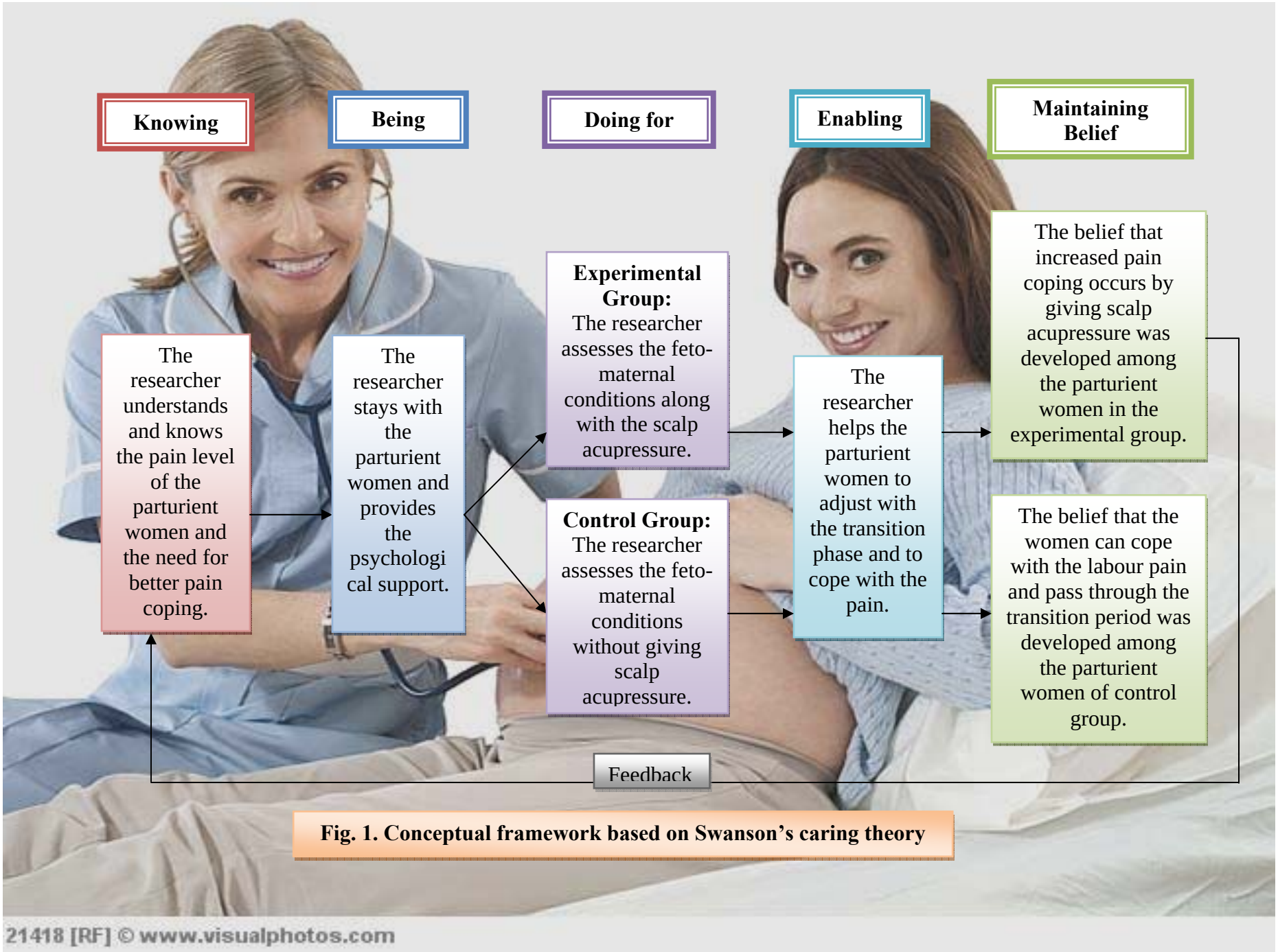

Fig. 1. Conceptual framework based on Swanson's caring theory

Projected Outcome

The study projects that scalp acupressure will have a change in the level of labour pain and coping among the primiparturient women.

Summary

This chapter has dealt with background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypotheses, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following chapters.

Chapter II consists of review of literature

Chapter III consists of research methodology which includes research approach, research design, setting, population, sample, sampling technique, tools used in the study, data collection procedure and plan for data analysis.

Chapter IV deals with analysis and interpretation of data done through descriptive and inferential statistics.

Chapter V comprises of Discussion

Chapter VI consists of summary, conclusion, implications, recommendations and limitations.

CHAPTER II

REVIEW OF LITERATURE

A critical summary of research on a topic of interest, often prepared to put a research problem in context (Polit, 2010).

The review of literature provides information, ideas, data and evidence to the researcher written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated and the effective evaluation of these documents in relation to the research being proposed.

The review of literature in this chapter has been presented under the following headings.

- Literature related to labour pain.
- Literature related to pain management in labour.
- Literature related to acupressure.
- Literature related to acupressure in labour.

Literature related to labour pain

In the year 2008 Tzeng and su carried out a correlational design to describe the characteristics of low back pain during labor and to identify the factors relating to intrapartum low back pain in Taiwan women. Ninety-three low-risk women in labor were recruited. Low back pain was repeatedly measured during the latent phase, early active

phase, and late active phase of labor. The findings stated that the pattern of pain in 45.71% women was continuous and massage was chosen as the most effective intervention to alleviate low back pain by 65.3% of women.

Bergstrom, Kieler and Waldenstrom conducted a cohort study on psycho prophylaxis during labour on labour outcome and experience of child birth in Sweden between October 2005 and January 2007. A total of 857 primigravid women were involved in the study and data were collected by questionnaires in mid-pregnancy and three months after birth. The results concluded that use of psycho prophylaxis during labour was associated with a lower risk of emergency caeserean, but an increased risk of augmentation of labour.

A cross-national comparison of Belgian and Dutch childbearing women on pain acceptance and personal control in pain relief in two maternity care models was conducted by Christiaens et al., from 2004 - 2005 at Belgium. Two questionnaires were filled out by 327 women, one at 30 weeks of pregnancy and one within the first 2 weeks after childbirth. The results showed that Dutch women with a normal hospital birth had positive pain attitudes and are six times less likely to use pain medication during labour, compared to their Belgian counterparts who had negative pain attitudes.

In Germany a longitudinal cohort study on onset of labour, women's experiences and midwives assessment was conducted by Gross et al., (2004) which involved 1170 women among which 611 were nulliparae and 559 were multiparae. The data were collected using standardized questions and the study concluded that the perceptions of

women in labour are as important as perinatal factors (induction with oxytocin, herbal remedies and PROM) in determining the duration of first stage of labour and should be taken into account in intrapartum care.

Pain perception as perceived by the parturient is determined by physical and psychological factors. This cross-sectional study was conducted by Olayemi et al., at Ibadan from August 2003 to July 2004 among 765 parturients using a questionnaire with the Box Numerical Scale to assess pain score within 48 hours of delivery. The study concluded that westernization through education tends to increase perception of pain by parturients in this environment.

A study was conducted in USA to compare maternal satisfaction and pain control in women electing natural childbirth where 24 women participated. Women who requested epidural analgesia for pain during labor reported significantly lower pain scores than those women who had natural childbirth. However, 88% of women who requested an epidural for pain reported being less satisfied with their childbirth experience than those who did not, despite lower pain intensity (Kannan, Jamison & Datta, 2001).

The expected and experienced labour pain of 99 primiparous women, aged from 17-40 years, was compared in the prospective study conducted by Lawrence and Percival in Australia (1995). The Visual Analogue Scales and the Pain Intensity of the McGill Pain Questionnaire were used to assess expected pain prenatally and experienced pain intrapartum and two hours postpartum. A significant difference was found between expected pain and pain experienced during early and transitional labour.

Literature related to pain management in labour

A randomized controlled trial (2009) was conducted by Borup et al., with 607 healthy women to compare the effect of acupuncture with transcutaneous electric nerve stimulation (TENS) and traditional analgesics for pain relief and relaxation during delivery with respect to pain intensity, birth experience, and obstetric outcome. The result showed that use of pharmacological and invasive methods was significantly lower in the acupuncture group and it was found to be a good supplement to existing pain relief methods.

Mei-dan et al., in the year 2008 carried out a prospective controlled trial to evaluate the effectiveness of antenatal perineal massage in increasing the likelihood of delivering with an intact perineum. The study included 234 nulliparous women with a singleton fetus. Women allocated to the study group were instructed to practice a 10 minute perineal massage daily from the 34th week of gestation until delivery. The practice of antenatal perineal massage showed neither a protective nor a detrimental significant effect on the occurrence of perineal trauma.

In the year 2005, Meta-analysis was performed by Smith to find out the effectiveness of complementary medicines on maternal satisfaction, use of pharmacological pain relief methods and maternal and neonatal adverse outcomes. Seven trials involving 366 women and using different modalities of pain management were included in this review. The trials included acupuncture, audio-analgesia, aromatherapy, hypnosis and

music. The study concluded that Acupuncture and hypnosis may be beneficial for the management of pain during labour.

In Glasgow University, UK, a randomized controlled trial was conducted to compare the efficacy of diamorphine administered by a patient-controlled pump with intramuscular administration for pain relief in labour. The study included primigravidae and multigravidae in labour between 37-42 weeks of gestation. Study group women were attached to the diamorphine pump after intravenous loading dose whereas control group women received intramuscular diamorphine as per hospital protocol. The study concluded that patient-controlled analgesia administration of diamorphine offers no significant advantages over intramuscular administration. (Mclnnes RJ et al., 2004).

To find the benefits of hypnotic analgesia as an adjunct to childbirth education Harmon, Hynan & Tyre conducted a study with 60 nulliparous women at Milwaukee in the year 2002. Subjects were divided into high and low hypnotic susceptibility groups. Half of the subjects in each group received a hypnotic induction and the remaining control subjects received relaxation and breathing exercises typically used in childbirth education. Both hypnotic subjects and highly susceptible subjects reported reduced pain. The study proposed that repeated skill mastery facilitated the effectiveness of hypnosis.

In an uncontrolled prospective study conducted by National Center for Complementary and Alternative Medicine (NCCAM) reported on the use and effectiveness of aromatherapy in a large referral maternity unit in the united kingdom over 8 year period between 1990 and 1998. 8058 women received aromatherapy during labour under the

supervision of midwives trained in aromatherapy. The findings indicated that rose oil was helpful by about 71% followed by lavender (50%) and 54% found lavender helpful and 64% found frankincense helpful.

Literature related to acupressure

To critically evaluate the evidence for or against acupuncture for labour pain management Cho, Lee and Ernst (2010) carried out a meta-analysis involving 2038 women. Patients reported significantly reduced pain by 4 and 6% during electroacupuncture treatment at 15 and 30 minutes, compared with placebo electroacupuncture. Compared with no intervention, acupuncture reduced pain by 11% for the first 30 minutes. No acupuncture related adverse events were reported.

Acupuncture and hydrotherapy was effective in reducing labour pain which was supported by a review using electronic databases carried out in university of Paris, France by Tournaire and Yonneau (2006) in evaluating the effect of complementary and alternative medicine on pain during labour with conventional scientific methods. The findings concluded that for the decrease of labour pain and/or reduction of the need for conventional analgesic methods there is an efficacy found for acupressure and sterile water blocks. Most result favoured some efficacy for acupuncture and hydrotherapy.

In USA in the year 2005 Anderson and Johnson carried out randomized controlled studies to identify the use of complementary and alternative medicine (CAM) for obstetric treatment or health promotion. Acupressure and ginger for prenatal nausea and vomiting,

moxibustion for version of breech presentation, sterile water injections for back pain relief in labor and perineal massage to prevent perineal trauma have three or more studies demonstrating beneficial effect. It was concluded that some CAM interventions have evidence of effectiveness for use in obstetric patients.

Shin & Song conducted a study to determine the effect of P6 acupressure for symptom control in pregnant women having hyperemesis gravidarum in the year 2003 which included 66 patients. They were divided into acupressure group, placebo group and control group. It was found that hyperemesis gravidarum patients who received P6 acupressure experienced much less nausea and vomiting than the placebo acupressure and control group.

In 2002, Jun conducted a study to assess the effect of SP 6 acupressure on dysmenorrhea at Korea. A total of 58 students from two universities participated in the study and SP-6 acupressure was provided for 20 minutes for students in the experimental group. There were statistically significant differences in the intensity of dysmenorrhea 30 minutes after the intervention with the experimental group having a lower intensity than the control group and the study thus concluded SP-6 acupressure reduced the subjective perception of dysmenorrhea.

A study was conducted to find out the effectiveness of acupressure in alleviating nausea and vomiting in early pregnancy at Norwegian. Ninety seven women with mean gestational age between 8 and 12 weeks were randomized to use either active acupressure or placebo acupressure bands. Symptoms were recorded before entering, during and after

the study. The study concluded that women in both the group had same tendency towards the intensity and duration of morning sickness and suggested that acupressure wristband might be used as an alternative for morning sickness in early pregnancy. (Norheim et al., 2001).

Literature related to acupressure in labour

Kashanian and Shahali (2010) conducted a study to assess the Effects of acupressure at the Sanyinjiao point (SP6) on the process of active phase of labor in nulliparous women. The study included 120 nulliparous women and the intervention group received acupressure massage at Sanyinjiao point during contractions where as control group received only touch. The result interpreted that the mean duration of the active phase of labour, number of caesarean deliveries, severity of labour pain and amount of oxytocin used were significantly reduced in the intervention group when compared to the control group.

A study was conducted to assess the effectiveness of ice massage over energy meridian points during first stage of labour among the primiparturient women which included 60 participants. The ice massage was provided during active and transition phase of labour every one hour and the pain level was assessed before and after the therapy. The findings suggested that the pain level was lower in the experimental group after the therapy compared to control group and thus concluded that ice massage over energy meridian point was effective in reducing labour pain. (Saraswathi., 2010).

Among 90 primiparous women in a hospital at Iran, a comparative randomized controlled trial was conducted to assess the effect of Hoku Point (LI4) acupressure and San-Yin-Jiao (SP6) acupressure on pain intensity in primiparous women during the active phase of labor in the year 2008-2009 by Salehian et al. The subjects were randomly assigned into 3 equivalent groups. Labor pain was measured, before and after the intervention. The results indicated that acupressure affects the intensity of labor pain and shortens the duration of the active phase of labor among the primiparous women.

The finding of better analgesic effect of scalp acupressure in vaginal delivery was obtained in a study conducted by Bo and Zhang in China in the year 2006. Seventy primiparae with the term pregnancy and monocyesis were randomly divided into scalp acupressure group treated by acupressure at the Shenghi area of scalp and control group by no treatment. The labour pain with 1 to approximately 2 grades was found in 33 cases in the scalp acupressure group and 2 grades were found in the control group with very significant difference between the two groups with no adverse effect on the mother and infant.

In the year 2004, Lee, Chang and Kang conducted a randomized clinical trial to evaluate the effects of SP6 acupressure on labour pain and delivery time of women in labour in Korea. Seventy five women were involved and 30 minutes acupressure on SP 6 acupoints was performed. Labour pain was measured four times, before intervention and immediately after intervention, 30 and 60 minutes after the intervention. The findings concluded that SP 6 acupressure was effective for decreasing labour pain and shortening the length of delivery time.

An experimental study to determine the effect of LI4 and BL67 acupressure on labor pain and uterine contractions during the first stage of labor was carried out by Chung et al., with 127 parturient women assigned to three groups. Each group received only one of the following treatments, LI4 and BL67 acupressure, light skin stroking, or no treatment/conversation only. The findings indicated that there was a significant difference in labor pain among the three groups with no significant difference in effectiveness of uterine contractions (2003).

In USA in the year 2003, a study to find the use of ice massage in the acupressure energy meridian point (LI4) to reduce labor pain during contractions was conducted by Raisler and Waters. A one-group, pretest - posttest design was chosen where the pretest served as control. Participants noted a mean pain reduction from number 3 (distressing) to number 2 (discomforting). The study results suggested that ice massage is a safe, noninvasive, nonpharmacological method of reducing labor pain.

Summary

This chapter deals with the review of literature related to the problem stated. The literatures were taken from the 25 primary and 1 secondary sources. It helped the researcher to develop tools, collect data, organize and analyze the data.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the methodology used by the researcher in this study which includes research approach, research design, setting of the study, population, sample, sampling technique, sampling criteria, selection and development of the tools, psychometric properties of the tools, pilot study, data collection procedure and plan for data analysis.

Research Approach

Polit and Beck (2010) says that a true experimental study should be characterized by manipulation, control and randomization as it helps to give the cause and effect relationship between the variables. As the effectiveness of scalp acupressure is to be assessed upon labour pain in this study, the researcher found true experimental approach to be appropriate.

Research Design

Research design is the overall plan for addressing a research question, including specifications for enhancing the study's integrity (Polit, 2008).

Time series design with multiple institution of treatment was used in the study. The researcher assessed the pain level with the pain intensity scale, coping level with the pain coping scale, feto maternal parameters with modified WHO partograph before intervention for both the control and experimental group of primiparturient women. The researcher then

provided scalp acupressure at Shenghi area for 4 minutes with 30 seconds at each point for the experimental group of primiparturient women every one hour during the active and transition phase of labour and reassessed the pain level, coping level and feto maternal parameters for both the group after each intervention. Then the level of satisfaction on scalp acupressure was assessed from the experimental group of primiparturient women.

R O1 – O2, O3 – O4, O5 – O6.....O13 – O14

R O1 X O2, O3 X O4, O5 X O6 …….. O13 X O14

R	-Randomization
O1, O3, O5, O7, O9, O11, O13	- Assessment before scalp acupressure.
X	- Administration of scalp acupressure.
O2, O4, O6, O8, O10, O12, O14	- Assessment after scalp acupressure.

Variables

Variable is an attribute that varies, that is takes on different values (polit, 2010).

Independent variable

The variable that is believed to cause or influence the dependent variable is called independent variable. In this study scalp acupressure is the independent variable. Scalp acupressure is provided in the shenghi area of scalp for four minutes with 30 seconds at each point to assess the change in the pain level and coping level.

Dependent variable

The variable hypothesized to depend on or be caused by independent variable is the dependent variable. Labour pain is the dependent variable in this study. The level of labour pain is assessed every hour before and after scalp acupressure during the active and transition phase of first stage of labour

Extraneous variables

A variable that confounds the relationship between the independent and dependent variables and that needs to be controlled either in the research design or through statistical procedures is the extraneous variables. Demographic variables and obstetric variables were extraneous variables in this study.

Research Setting

The study was conducted at St.Antony's Hospital located at Madhavaram which is a semi-urban area of Chennai. The hospital is 200 bedded which has labour room with three labour table and equipments like CTG machine, warmer and life saving drugs and equipments for Obstetric and Medical Emergencies. On an average 80 – 100 primigravidae undergo normal vaginal delivery every month. The hospital also has postnatal ward, post operative ward, NICU, operation theatre, laboratory and other diagnostic facilities like scanning. They also provide Immunization and conduct teaching programmes for the staffs and the patients and do referral to government agencies in need.

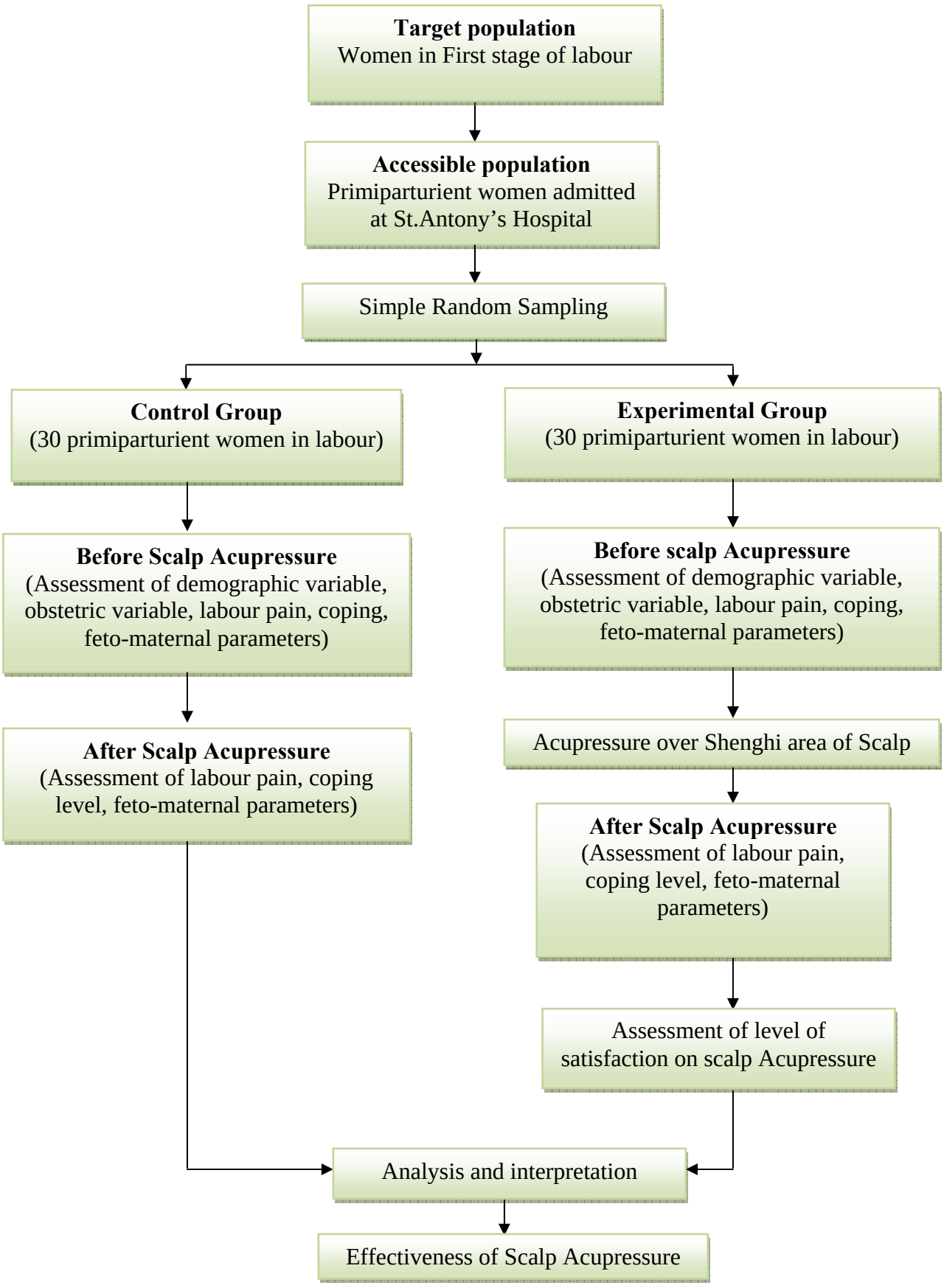

Fig 2. Schematic Representation of the Research Design

Population

Population is the entire set of individuals or objects having some common characteristics (Polit and Beck, 2010). The target population is the entire population in which a researcher is interested and to which he or she would like to generalize the study results. In this study the target population was all the primiparturient women in the first stage of labour. The accessible population is the aggregate of cases that conform to designated criteria and that are accessible as subjects for a study. In this study the accessible population was all the primiparturient women admitted at St. Antony's Hospital, Chennai.

Sample

According to Polit and Beck (2010) sample is a subset of population elements. A sample of 60 primiparturient women in the first stage of labour was selected among which 30 primiparturient women was randomly assigned to the control group and 30 primiparturient women was assigned to the experimental group.

Sampling Technique

Sampling is the process of selecting a portion of the population to represent the entire population so that inferences about the population can be made (Polit and Beck 2010). Simple random sampling was used in this study for the women who satisfy the inclusion criteria where the odd number parturient women were assigned to control group and the even number parturient women were assigned to the experimental group.

Sampling Criteria

Inclusion criteria:

The study includes parturient women who were

- in the first stage of labour with ≥4cm of cervical dilatation
- between 37-42 weeks of gestation
- willing to participate in the study
- able to understand and speak either Tamil or English

Exclusion criteria:

The study excluded

- mother with any underlying diseases such as PIH, DM
- mother with complicated pregnancy like obstructed labour, multiple pregnancy, preterm labour.
- Multigravidae

Selection and Development of Study Instruments

The instruments for this study were developed to evaluate the effectiveness of scalp acupressure upon labour pain through extensive review of literature. The instruments used in this study were demographic variable proforma, obstetric variable proforma, modified pain intensity scale, pain coping scale, modified WHO Partograph and rating scale on satisfaction of scalp acupressure upon labour pain.

Demographic variable proforma for primiparturient women

Demographic variable proforma consists of age, educational qualification,

occupation, type of work, area of residence, type of family, food habits and previous knowledge about acupressure.

Obstetric variable proforma for primiparturient women

Obstetric variable proforma consists of gestational age in weeks, number of antenatal visits, pain management during first stage of labour, type of delivery, indications of abnormal delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn at birth and birth weight of the baby.

Modified pain intensity scale for primiparturient women

Pain intensity scale was used to assess the level of labour pain during the first stage of labour among the primiparturient women before and after scalp acupressure which was collected by the researcher through interview.

Pain coping scale for primiparturient women

Pain coping scale was used to assess the pain coping level of the primiparturient women before and after scalp acupressure during the first stage of labour.

Modified WHO partograph for primiparturient women

This graph consists of fetal heart rate, maternal heart rate, maternal blood pressure, cervical dilatation, frequency and duration of uterine contraction.

Rating scale on satisfaction of scalp acupressure upon Labour Pain

This scale was designed by the researcher to assess the satisfaction level of the

participants regarding scalp acupressure provided during first stage of labour which is assessed after the delivery.

The satisfaction score were classified as follows:

Score	Percentage	Interpretation
<12	<40%	Low satisfaction
12 – 20	40 – 69%	Moderate satisfaction
21 – 30	70 – 100%	High satisfaction

Psychometric Properties of the Instruments

Validity of the Instruments

Validity is the degree to which an instrument measures what it is intended to measure (Polit, 2010).

Content validity of the tool was obtained from seven experts in the field of Obstetrics and Gynaecology. Two of the experts were doctors and five were nursing personnel. The suggestions given by the validators regarding rating scale was made in the final preparation of the tool.

Reliability of the Instruments

Reliability is the degree of consistence or dependability with which an instrument measures an attribute (Polit 2010). The reliability was found using Pearson's correlation formula.

1. Pain intensity scale for primiparturient women – 0.9 (inter rater technique).

2. Pain coping scale for primiparturient women – 0.9 (inter rater technique).

3. Rating scale on satisfaction on scalp acupressure upon labour pain – 0.9 (test – retest method).

Pilot study

Pilot study is a small scale version or trial run done in preparation for a major study (Polit, 2004). The purpose of the pilot study was to find out the feasibility and practicability of study design.

The pilot study was conducted at St.Antony's Hospital, Chennai by selecting 10 primiparturient women with 5 women in the control group and 5 women in the experimental group using simple random sampling in order to assess the methodology and tool. The level of labour pain, coping and feto maternal parameters were assessed using Numerical pain intensity scale, pain coping scale and Modified WHO Partograph respectively for both the control and experimental group before therapy. Scalp acupressure was provided for four minutes of which 30 seconds at each point for the participants of experimental group during the active and transition phase of labour. Again the pain level, coping level and feto maternal parameters were assessed for both the group. The level of satisfaction on scalp acupressure was assessed from the experimental group after delivery. After the pilot study, it was found to be feasible and effective and the study instruments were found to be appropriate.

Protection of Human Rights

The study was conducted

- after the approval of ethical committee of Apollo Hospitals
- after obtaining permission from Dr. Latha Venkatesan, Principal of Apollo college of Nursing, HOD of Obstetric and Gynaecological Nursing and Sr. Magdaline, the administrator of St. Antony's Hospital.
- after obtaining written consent from the participants
- with confidentiality throughout the study.

Data collection procedure

Data collection is gathering information about something which the researcher has chosen to explore or investigate (Crookes and Davies, 1998).

The researcher was trained for one week in giving scalp acupressure and certified before data collection. Protection of human rights was maintained and the data was collected day and night from June 17 to July 30.

The participants were selected using simple random sampling among which 30 women were assigned to the control group and 30 women to the experimental group and the data was collected from the participants through interview and through medical records. The labour pain level was assessed by the numerical pain intensity scale, coping level with coping scale and fetomaternal parameters using modified WHO partograph before each intervention for both control and experimental group of primiparturient women.

Scalp acupressure was provided every one hour for four minutes with 30 seconds at each point for experimental group of primiparturient women during the active and transition phase of labour. The pain level, coping level and fetomaternal parameters were assessed after each intervention for both groups with the same tools. The level of satisfaction on scalp acupressure was assessed in the experimental group of primiparturient women using rating scale after delivery.

Problems faced during data collection

- Few primi parturient women felt that they were disturbed every hour to fill the scale.

Acupressure Points in Shenghi Area of Scalp

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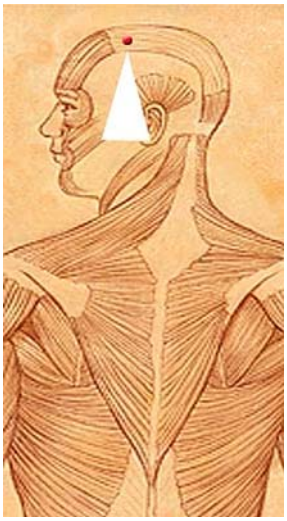

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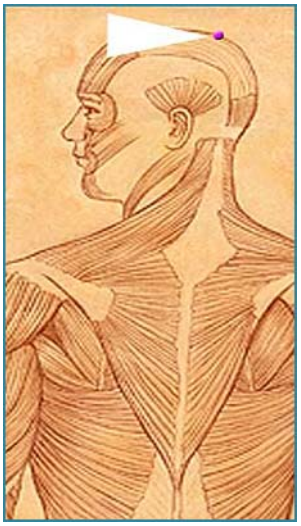

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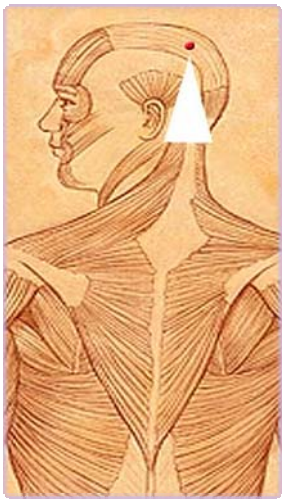

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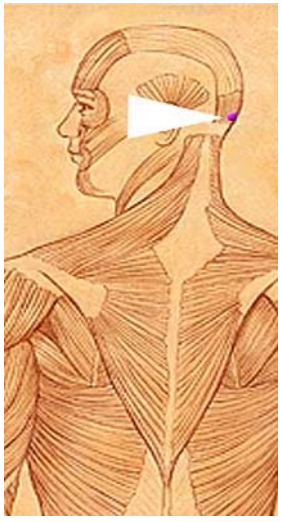

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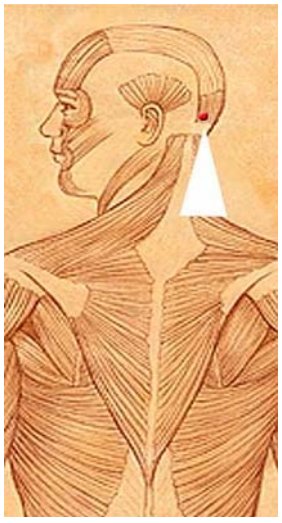

BL 9

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of hypothesis using those data (Polit and Beck, 2010).

Analysis were carried out using Descriptive statistics like frequency distribution, percentage, mean, standard deviation and inferential statistics like independent ‘t’ test. The association between the demographic variables, obstetric variables and dependent variables were analysed with the help of chi-square test.

Summary

This chapter dealt with the research approach, research design, setting, population, sample, sampling technique, sampling criteria, development of study instruments, reliability and validity of the instruments, pilot study, data collection procedure and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

Statistics are aggregates of facts, affected to a marked extent by multiplicity of causes, numerically expressed, enumerated or estimated according to reasonable standards of accuracy, collected by systematic manner for a predetermined purpose and placed in relation to each other (Aggarwal, 2010).

The data was collected from 60 primiparturient women among which 30 were in the control group and 30 were in the experimental group. The data were analysed using descriptive and inferential statistics based on the objectives and hypothesis. The data analysis was completed after transferring all the data to the master coding sheet.

Organization of findings

- Frequency and percentage distribution of demographic variables, obstetric variables, level of labour pain, level of coping, level of satisfaction before and after scalp acupressure in the control and experimental group of primiparturient women.

- Comparison of mean and standard deviation of level of labour pain, level of coping and feto maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.

- Association between selected demographic variables and the level of labour pain and coping, selected obstetric variable and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.

Table 1

Frequency and Percentage Distribution of Demographic Variable in Control and Experimental Group of Primiparturient Women (Age, Educational qualification, Occupation, Type of work, Area of residence, Type of family, Food habits and previous knowledge about acupressure).

Demographic Variables	Control Group (n=30)		Experimental Group (n=30)	
	f	P	f	P
Age in years				
≤ 19	-	-	-	-
20 - 24	20	66.7	20	66.7
25 - 29	9	30	10	33.3
≥ 30	1	3.3	-	-
Educational Qualification				
Non - literate	-	-	-	-
Primary Education	-	-	-	-
Secondary Education	16	53.4	14	46.7
Graduate	13	43.3	15	50
Post graduate	1	3.3	1	3.3
Occupation				
Home makers	27	90	25	83.3
Employed	3	10	5	16.7
Food Habits				
Vegetarian	-	-	-	-
Non - vegetarian	30	100	30	100
Previous knowledge about acupressure				
Yes	6	20	5	16.7
No	24	80	25	83.3

From Table 1 it can be interpreted that most of the women were homogenously distributed between the age of 20 – 24 years (66.7%, 66.7%), with secondary education (53.4%, 46.7%) and majority of the women were home makers (90%, 83.3%) and had no previous knowledge about acupressure (80%, 83.3%) and all the women were vegetarians(100%, 100%) in the control and experimental group respectively.

Fig 3 shows that majority of them were moderate workers (93.3%, 83.3%) and none of them were heavy worker in both the control and experiemental group respectively.

Fig 4 reveals that most of the women in the control group belong to the semi-urban area(46.6%) whereas the women in the experimental group were almost equally distributed in rural, semi-urban and urban areas (33.35, 36.7% and 30%) respectively.

Fig 5 interprets that most of the women in both the control and experimental group belong to nuclear family (73.3%, 73.3%).

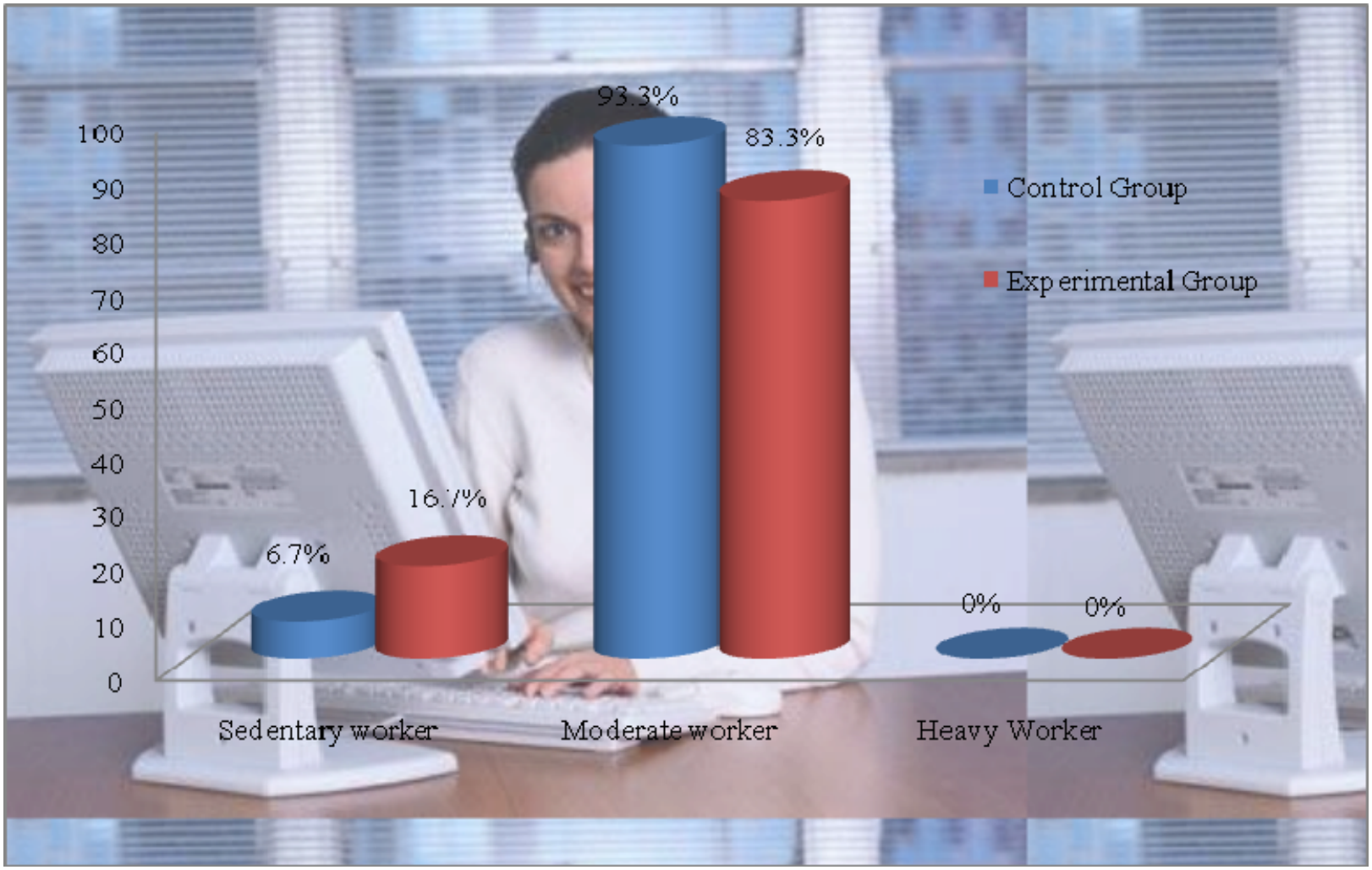

Fig.3 Percentage Distribution of Type of work in Control and Experimental group of Primiparturient Women

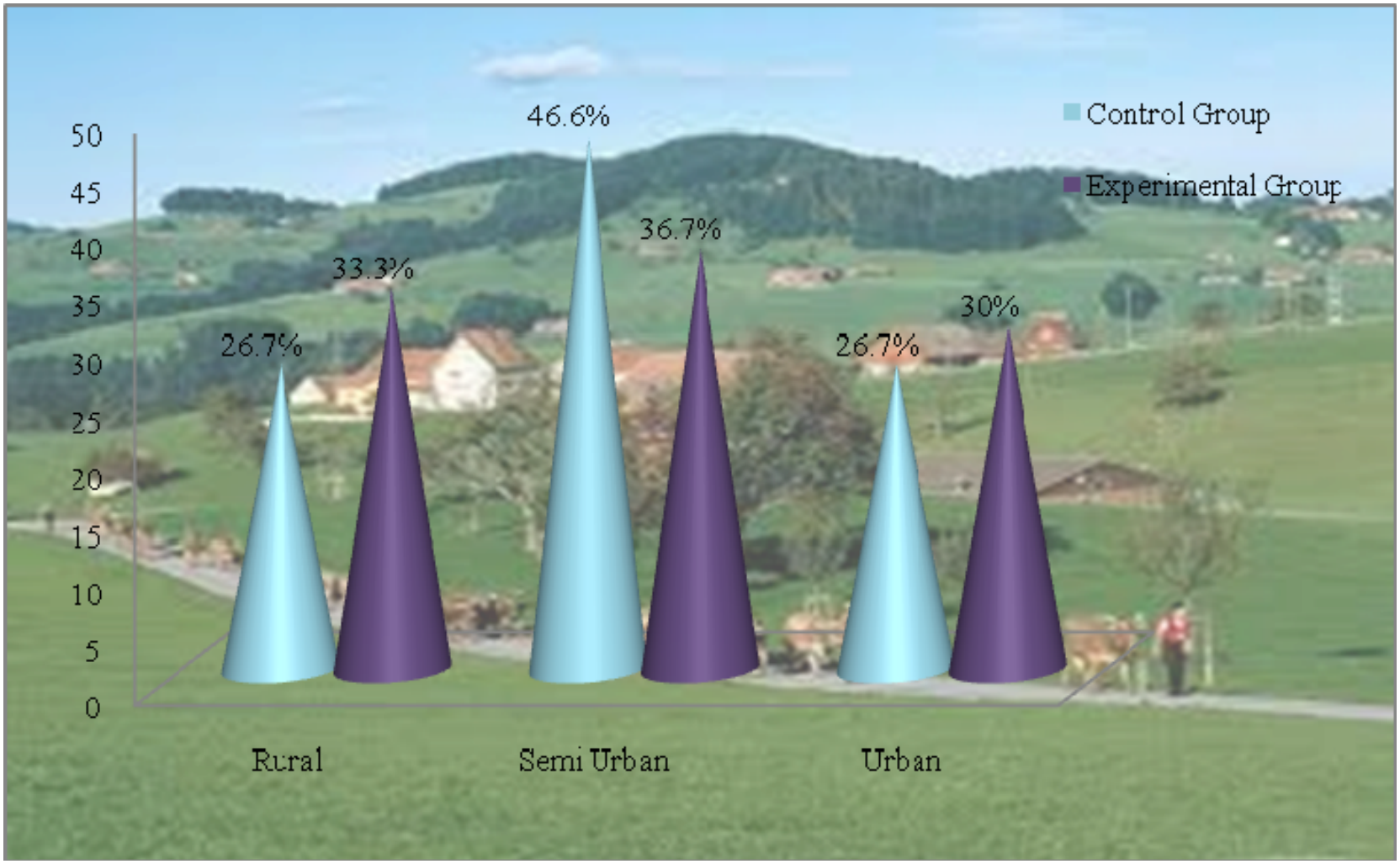

Fig.4 Percentage Distribution of Area of Residence in Control and Experimental group of Primiparturient Women

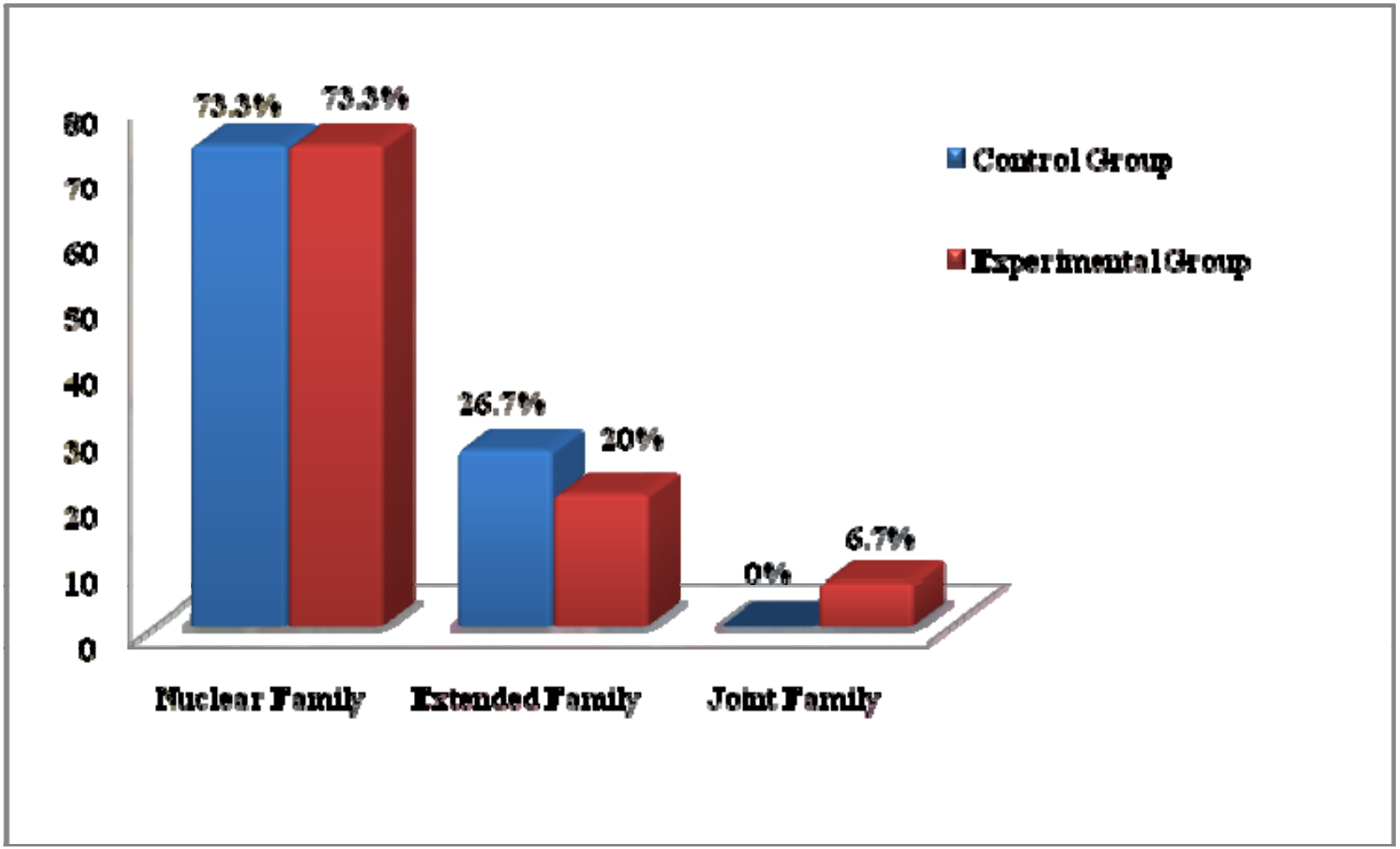

Fig.5 Percentage Distribution of Type of Family in Control and Experimental group of Primiparturient Women

Table 2

Frequency and Percentage Distribution of Obstetric Variables in Control and Experimental Group of Primiparturient Women (Gestational age in weeks, Number of antenatal visits, Pain management during first stage of labour, Type of delivery, Indications of abnormal delivery, Duration of first stage of labour, Duration of second stage of labour, Duration of third stage of labour, APGAR score of the newborn at birth and Birth weight of the baby**)**

Obstetric Variables	Control group (n=30)		Experimental group (n=30)	
	f	P	f	P
Gestational age in weeks				
37 – 38	2	6.7	1	3.3
39 - 40	28	93.3	29	96.7
41 – 42	-	-	-	-
Number of antenatal visits				
No visit	-	-	-	-
≤ 4	3	10	2	6.7
> 5	27	90	28	93.3
Pain management during first stage of labour				
Epidural analgesia	-	-	-	-
Systemic analgesia	-	-	-	-
Inhalation analgesia	-	-	-	-
Combined analgesia	-	-	-	-
None	30	100	30	100
Type of Delivery				
Normal vaginal delivery	29	96.7	30	100
Vacuum delivery	-	-	-	-
Forceps delivery	-	-	-	-
Lower segment caeserean section	1	3.3	-	-

Obstetric Variables	Control group (n=30)		Experimental group (n=30)	
	f	P	f	P
Indications if the delivery is abnormal				
5.1 Prolonged labour	1	3.3	-	-
5.2 Obstructed labour	-	-	-	-
5.3 Dystocia	-	-	-	-
5.4 Fetal distress	-	-	-	-
Duration of second stage of labour				
< 1 hour	29	96.7	30	100
1 hour – 2 hour	1	3.3	-	-
> 2 hour	-	-	-	-
Duration of third stage of labour				
< 10 minutes	25	83.3	30	100
10 – 20 minutes	5	16.7	-	-
> 20 minutes	-	-	-	-
APGAR score of the newborn at birth				
< 3	-	-	-	-
4 – 6	1	3.3	-	-
7 – 10	29	96.7	30	100

The data presented in Table 2 depicts that majority of the women in both the control and experimental group were between the gestational age of 39 – 40 weeks (93.3%, 96.7%), had more than five antenatal visits (90%, 93.3%) with none receiving any type of pain management during first stage of labour (100%, 100%), undergone normal vaginal delivery (96.7%, 100%) with second stage of labour less than one hour (96.7%, 100%) and

third stage of labour less than ten minutes (83.3%, 100%) with the APGAR score of the newborn between 7 – 10 (96.7%, 100%) respectively. In the control group one of the women had undergone lower segment caesarean section (3.3%, 0%) with duration of second stage of labour between 1 to 2 hour (3.3%, 0%) and five women with duration of third stage of labour between 10 to 20 minutes (16.7%, 0%) with none in the experimental group respectively.

Fig 6 represents that most of the women in the control group had first stage of labour between 10 – 14 hours (73.3%) of duration, whereas majority of the women in the experimental group had first stage of labour less than 10 hours (93.3%) and none of them had more than 14 hours.

Fig 7 infers that most of the women in the control and experimental group had baby with birth weight of 2.5 – 3 kg (63.4%, 53.3%) respectively.

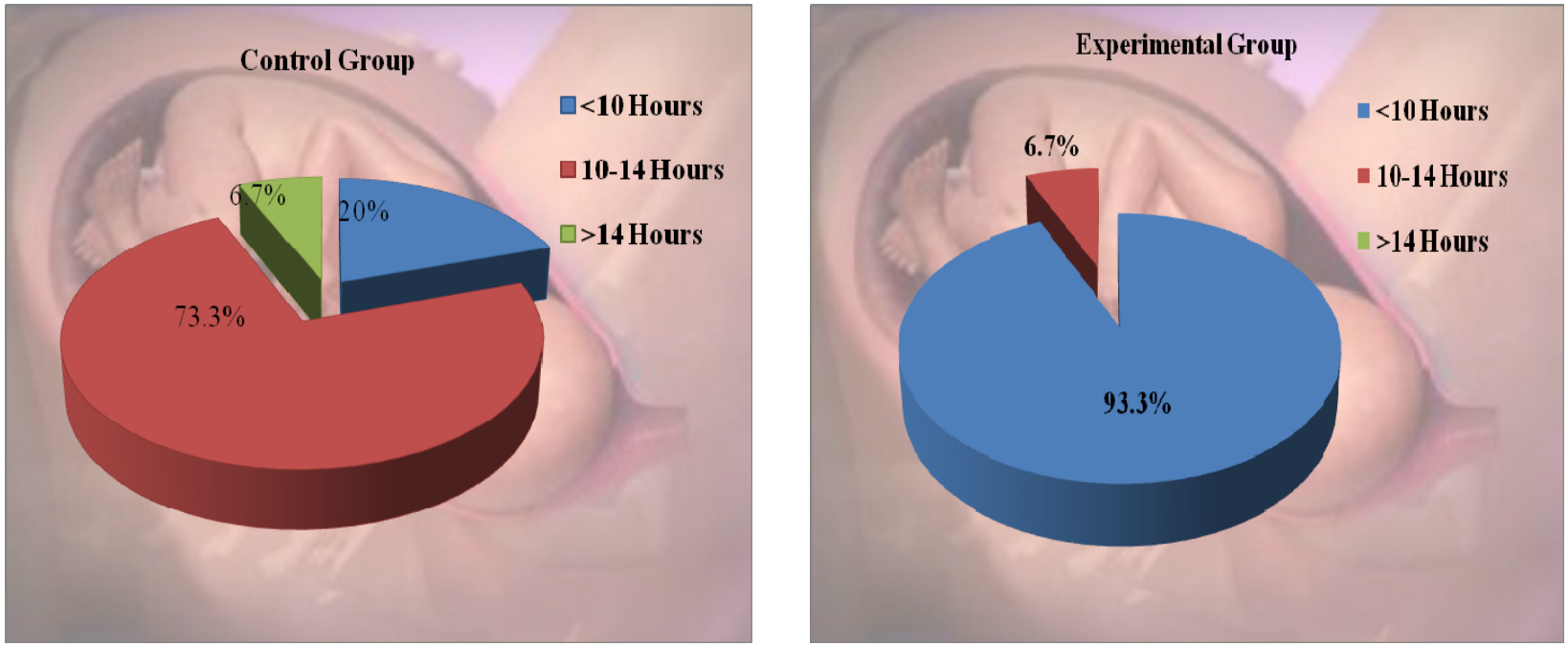

Fig.6 Percentage Distribution of Duration of First Stage of Labour in Control and Experimental Group of Primiparturient Women

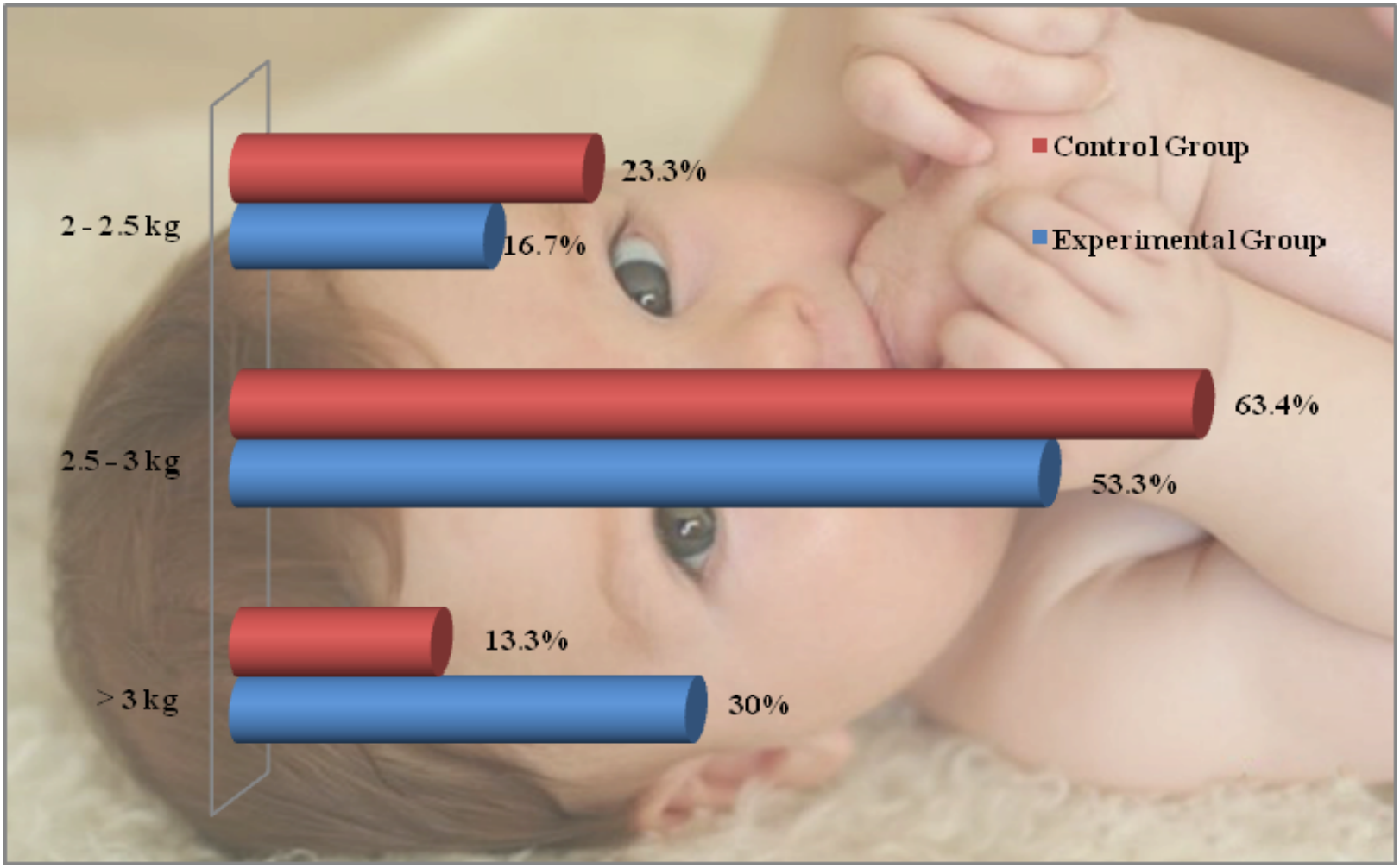

Fig.7 Percentage Distribution of Birth weight of the Baby in Control and Experimental Group of Primiparturient Women

Table 3

Frequency and Percentage Distribution of Level of Labour Pain Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women

Level of labour pain	Before Therapy (n=60)		After Therapy (n=60)	
	f	P	f	P
Control Group				
No pain	-	-	-	-
Mild pain	-	-	-	-
Moderate pain	-	-	3	10
Severe pain	30	100	27	90
Worst possible pain	-	-	-	-
Experimental Group				
No pain	-	-	-	-
Mild pain	-	-	-	-
Moderate pain	-	-	27	90
Severe pain	30	100	3	10
Worst possible pain	-	-	-	-

Table 3 reveals that majority of the primiparturient women in the control group had severe pain (100% & 90%) before and after therapy respectively whereas majority of the primiparturient women in the experimental group had moderate pain (90%) after therapy when compared with before therapy where all the women had severe pain (100%).

Table 4

Frequency and Percentage Distribution of Level of Coping Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women.

Level of pain coping	Before Therapy (n=60)		After Therapy (n=60)	
	f	P	f	P
Control Group				
No need to cope	-	-	-	-
Easy	-	-	-	-
Able to do 3 R's	-	-	5	16.7
Needs lot of help	30	100	25	83.3
Can't do it	-	-	-	-
Experimental Group				
No need to cope	-	-	-	-
Easy	-	-	-	-
Able to do 3 R's	-	-	26	86.7
Needs lot of help	30	100	4	13.3
Can't do it	-	-	-	-

It can be interpreted from Table 4 that majority of the primiparturient women in the control group need lot of help after therapy (83.3%) and all of them needed lot of help (100%) before therapy. But majority of the primiparturient women in the experimental group were able to do 3R's- Rhythm, Ritual and relaxation (86.7%) after therapy when compared with before therapy where all the primiparturient women need lot of help (100%).

Table 5

Comparison of Mean and Standard Deviation of Level of Labour Pain Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women.

Group	n	Before therapy		After therapy		Paired 't' value
		Mean	SD	Mean	SD	
Control Group	30	7.4	0.51	8.95	0.51	6.66***
Experimental Group	30	7.86	0.34	5.63	0.66	14.6***
Before therapy		7.4	0.51	7.86	0.34	
After therapy		8.95	0.51	5.63	0.66	

***P< 0.001

Table 5 depicts that the mean pain level in the control group was high after therapy (M=8.95, SD=083) compared to before therapy (M=7.4, S.D=0.51) whereas the mean pain level was low (M=5.63, SD=0.66) after therapy in the experimental group when compared with before therapy (M=7.86, SD=0.34). The level of confidence was 99.9% and it shows the effectiveness of scalp acupressure upon labour pain. Hence the null hypothesis $H_0$1 was rejected.

Table 6

Comparison of Mean and Standard Deviation of Level of Labour Pain of Each Observation Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women.

Observations	Before Scalp Acupressure				'F' Value	After Scalp Acupressure				'F' Value
	Control Group (n=30)		Experimental Group (n=30)			Control Group (n=30)		Experimental Group (n=30)		
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
1	5.1	0.66	5.83	0.59	85.113***	5.7	0.87	4.4	0.56	30.868***
2	5.93	0.69	6.7	0.79		6.53	1.04	4.57	0.85	
3	6.7	0.7	7.63	0.76		7.43	0.97	5.47	0.81	
4	7.47	0.68	8.63	0.71		8.03	1.12	6.27	0.94	
5	8.27	0.74	9.43	0.69		8.63	1.06	6.93	0.81	
6	8.93	0.79	9.77	0.43		9.14	0.87	7.77	1.23	
7	9.2	0.41	9	0		9.45	0.6	7.67	1.52	
8	9.86	0.36	10	0		9.79	0.42	7	0	

*** P<0.000

It is evident from Table 6 that the mean pain level in the control group in all the eight observations was lesser before scalp acupressure when compared to all the observations in the experimental group, whereas the mean pain level in all the eight observations was lesser after scalp acupressure in the experimental group when compared with all observations in the control group which shows that scalp acupressure is effective in

reducing the level of labour pain perception among the primiparturient women at p<0.000 level of confidence. Hence the null hypotheses Ho_1 was rejected.

Table 7

Comparison of Mean and Standard Deviation of Level of Coping Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women.

Group	n	Before therapy		After therapy		Paired 't' value
		Mean	SD	Mean	SD	
Control Group	**30**	5.36	0.23	2	1.01	8.91***
Experimental Group	**30**	1.9	0.22	6.01	0.66	15.17***

***P<0.001

Table 6 infers that the mean coping level was low after therapy (M=2.00, SD=1.01) in comparison with before therapy (M=5.36, SD=0.23) in the control group whereas the mean coping level was high after therapy (M=6.01, SD=0.96) in comparison with before therapy (M=1.9, SD=0.96) in the experimental group. Thus the effectiveness of scalp acupressure was statistically proved at 99.9% level of confidence.

Table 8

Comparison of Mean and Standard Deviation of Level of Coping of Each Observation Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women

Observations	Before Scalp Acupressure				'F' Value	After Scalp Acupressure				'F' Value
	Control Group (n=30)		Experimental Group (n=30)			Control Group (n=30)		Experimental Group (n=30)		
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
1	6.77	0.56	3.67	0.47	40.246***	3.8	1.18	4.9	0.84	29.294***
2	6.37	0.76	2.87	0.43		3.23	0.97	4.67	1.09	
3	5.53	0.68	2	0.45		2.47	1.04	3.87	1	
4	5.03	0.89	1.2	0.71		2	0.83	3.37	0.89	
5	4.37	0.89	0.59	0.69		1.37	0.99	2.75	1.04	
6	3.38	1.01	0.42	0.79		0.83	0.8	1.92	1.18	
7	2.5	1.1	0.67	0.57		0.4	0.59	1.33	1.52	
8	1.47	1.18	0	0		0.33	0.9	3	0	

*** $p<0.000$

It can be interpreted from Table 8 that the mean coping level of primiparturient women in the control group before scalp acupressure was higher in all the observations than the experimental group. But the mean coping level of primiparturient women in the control group was reduced after scalp acupressure when compared with all the observations of

women in experimental group. The significant changes in the level of coping between control and experimental group of primiparturient women at p<0.000 level of confidence proves that scalp acupressure is effective in improving the level of coping during labour.

Table 9

Comparison of Mean and Standard Deviation of Feto Maternal Parameters Before and After Scalp Acupressure in Control and Experimental Group of Primiparturient Women

Feto maternal parameters	Before Therapy (n=60)		After Therapy (n=60)		Paired 't' value
	M	SD	M	SD	
Control group					
Fetal heart rate	141.48	5.08	141.4	3.5	1.04
Maternal pulse rate	87.87	3.01	87.4	1.64	1.9
Uterine contraction frequency	3.5	0.2	3.7	0.06	2.64*
Uterine contraction Duration	41.9	4.78	43.7	5.3	3.56*
Systolic Blood Pressure	115.39	2.81	114.8	3.1	1.54
Diastolic Blood Pressure	74.37	1.98	74.22	2.08	0.68
Experimental group					
Fetal heart rate	141.4	4.26	141.9	4.18	2.6
Maternal pulse rate	86.03	2.34	85.5	2.2	2.53
Uterine contraction frequency	4.14	0.22	3.2	0.14	30***
Uterine contraction Duration	41.4	3.21	49.5	3.51	32.8***
Systolic Blood Pressure	114.2	2.12	113.8	1.6	1.05
Diastolic Blood Pressure	74.31	1.8	73.8	2.23	1.47

***P<0.001

*P<0.05

It can be depicted from the Table 7 that in the control group, frequency of uterine contraction (M=3.5, SD=0.2; M=3.7, SD=0.06) and duration of uterine contraction (M=41.9, SD=4.78; M=43.7, SD=5.3) were increased in after therapy in comparison with before therapy at 95% level of confidence. Whereas the frequency of uterine contraction was reduced after therapy (M=3.2, SD=0.14) when compared with before therapy (M=4.14, SD=0.22) and the duration of uterine contraction was increased after therapy (M=49.5, SD=3.51) when compared with before therapy (M=41.4, SD=3.21) in the experimental group of primiparturient women which shows that scalp acupressure was effective in reducing the frequency of uterine contraction and the difference in the experimental group was statistically proved at 99.9% level of confidence.

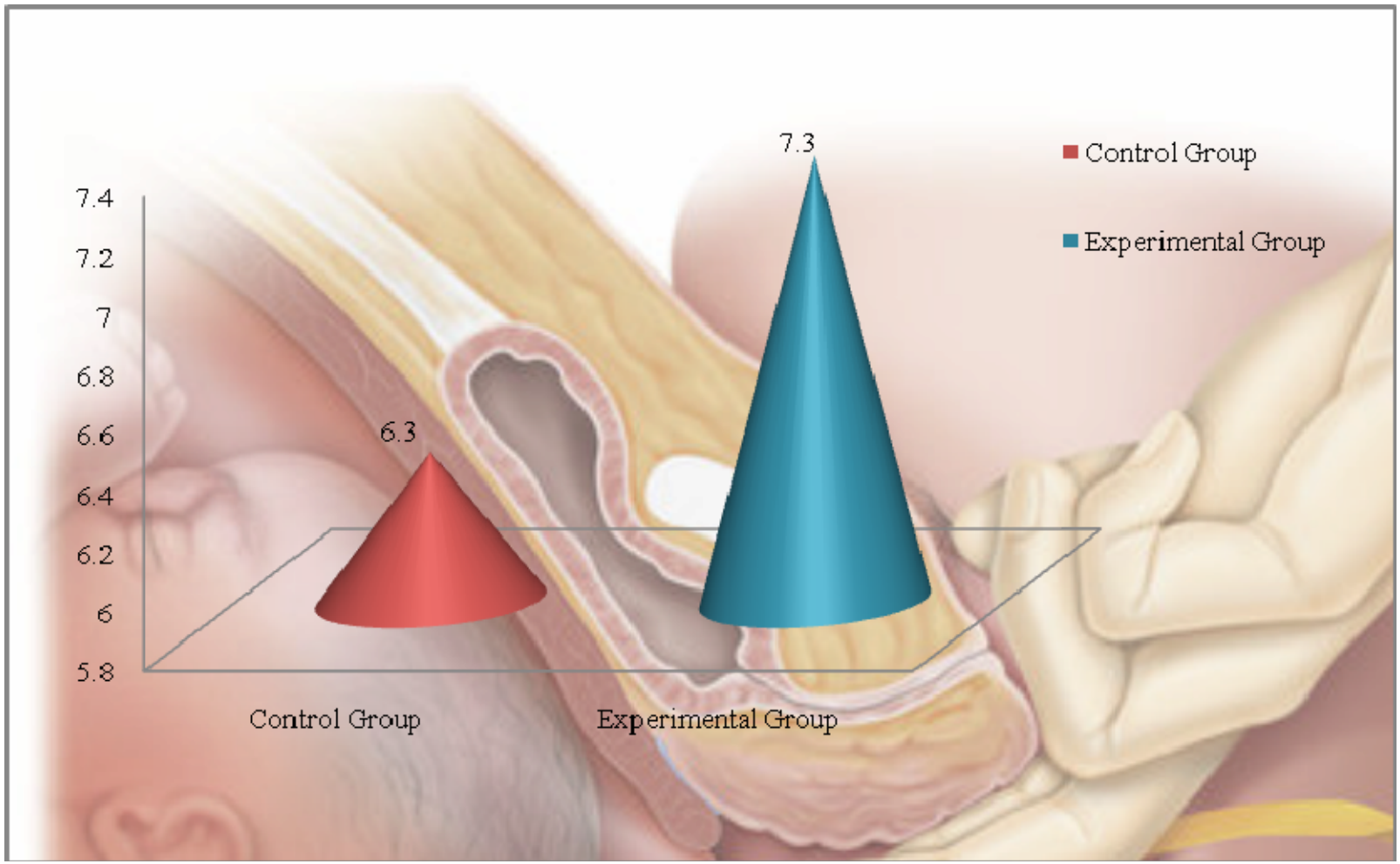

Fig.8 Mean Distribution of Cervical Dilatation in Control and Experimental Group of Primiparturient Women

Table 10

Frequency and Percentage Distribution of Level of Satisfaction on Scalp Acupressure in Experimental Group of Primiparturient Women

Level of Satisfaction	Experimental Group (n=30)	
	f	P
Low	-	-
Moderate	1	3.3
High	29	96.7

The data from the Table 8 shows that majority of the participants in experimental group were highly satisfied (96.7%) with the scalp acupressure during the first stage of labour and none of them reported low satisfaction towards the intervention.

Table 11

Association Between the Selected Demographic Variables and Level of Labour Pain After Scalp Acupressure in Control Group of Primiparturient Women. (Age, Educational Qualification, Occupation, Type of Work, Food Habits).

Demographic Variables	Level of Pain (n=30)		df	χ^2
	Moderate Pain	Severe Pain		
Age in years				
20 – 24	1	19	2	2.14
25 – 29	2	7		
≥ 30	-	1		
Educational Qualification				
Secondary education	1	15		
Graduate	1	12	2	9.326
Post Graduate	1	-		
Occupation				
Home makers	2	25	1	0.162
Employed	1	2		
Type of Work				
Sedentary worker	1	1	1	0.533
Moderate worker	2	26		
Area of Residence				
Rural	1	7		
Semi - Urban	0	14	2	3.605
Urban	2	6		
Type of Family				
Nuclear	1	21	1	2.72
Extended	2	6		

Food Habits				
Vegetarian	-	-	1	0.036
Non vegetarian	3	27		
Previous knowledge about acupressure				
Yes	1	5	1	0.347
No	2	22		

From the data presented in Table 10 it can be revealed that there is no association between age, educational qualification, occupation, type of work, area of residence, type of family, food habits and previous knowledge about acupressure with the level of labour pain after scalp acupressure in the control group of primiparturient women. Hence null hypothesis Ho_2 was retained. No statistics could be applied to find the association between selected demographic variables and the level of labour pain before scalp acupressure in the control group as the frequency of moderate pain was zero.

Table 12

Association Between the Selected Demographic Variables and Level of Labour Pain After Scalp Acupressure in Experimental Group of Primiparturient Women. (Age, Educational Qualification, Occupation, Type of Work, Food Habits).

Demographic Variables	Level of Pain (n=30)		df	χ^2
	Moderate Pain	Severe Pain		
Age in years				
20 – 24	18	2	1	0.415
25 – 29	9	1		
Educational Qualification				
Secondary education	12	2		
Graduate	14	1	2	0.58
Post Graduate	1	-		
Occupation				
Home makers	22	3	1	0
Employed	5	-		
Type of Work				
Sedentary worker	3	2	1	2.66
Moderate worker	24	1		
Area of Residence				
Rural	10	0		
Semi - Urban	10	1	2	0.973
Urban	8	1		
Type of Family				
Nuclear	20	2		
Extended	5	1	2	0.512
Joint	2	0		

Food Habits				
Vegetarian	-	-	1	0.092
Non vegetarian	27	3		
Previous knowledge about acupressure				
Yes	5	0	1	0.66
No	22	3		

Table 9 shows that there is no association between age, educational qualification, occupation, type of work, area of residence, type of family, food habits and previous knowledge about acupressure with the level of labour pain after scalp acupressure in the experimental group of primiparturient women. Hence the null hypothesis Ho_2 was retained. Since the frequency of having moderate pain before scalp acupressure was zero, no statistics could be applied to find the association between selected demographic variables and level of labour pain.

Table 13

Association Between the Selected Demographic Variables and Level of Coping After Scalp Acupressure in Control Group of Primiparturient Women. (Age, Educational qualification, Type of Work, Area of Residence, Type of Family).

Demographic Variables	Level of Coping (n=30)		df	$\chi 2$
	Needs lot of help	Able to do 3 R's		
Age in years				
20 – 24	18	2	2	2.58
25 – 29	6	3		
≥ 30	1	-		
Educational Qualification				
Secondary education	13	3		
Graduate	12	1	2	5.62
Post Graduate	-	1		
Occupation				
Home Makers	23	4	1	0.66
Employed	2	1		
Type of Work				
Sedentary worker	1	1	1	0.142
Moderate worker	24	4		
Area of Residence				
Rural	6	2	2	5.836
Semi - Urban	14	-		
Urban	5	3		
Type of Family				
Nuclear	19	3	1	0.035
Extended	6	2		

Food Habits				
Vegetarian	0	0	1	0
Non-Vegetarian	25	5		
Previous knowledge about acupressure				
Yes	5	1	1	0
No	20	4		

It can be interpreted from the Table 12 that there is no association between age, educational qualification, occupation, type of work, area of residence, type of family, food habits and previous knowledge about acupressure with the level of coping after scalp acupressure in the control group. Hence the null hypothesis Ho_2 was retained. As the frequency of samples who were able to do 3R's was zero before scalp acupressure, no statistics could be applied to find the association.

Table 14

Association Between the Selected Demographic Variables and Level of Coping After Scalp Acupressure in Experimental Group of Primiparturient Women. (Age, Educational qualification, Type of Work, Area of Residence, Type of Family).

Demographic Variables	Level of Coping (n=30)		df	χ^2
	Needs lot of help	Able to do 3 R's		
Age in years				
20 – 24	3	17	1	0.036
25 – 29	1	9		
Educational Qualification				
Secondary education	3	11		
Graduate	1	14	2	1.61
Post Graduate	-	1		
Occupation				
Home Makers	4	21	1	0.866
Employed	0	5		
Type of Work				
Sedentary worker	3	2	1	7.9
Moderate worker	1	24		
Area of Residence				
Rural	-	10	2	3.605
Semi - Urban	3	8		
Urban	1	8		
Type of Family				
Nuclear	3	19		
Extended	1	5	2	0.312
Joint	-	2		

Food Habits				
Vegetarian	0	0	1	0
Non-Vegetarian	4	26		
Previous knowledge about acupressure				
Yes	1	4	1	0.307
No	3	22		

The data from the above table reveals that there is no association between age, educational qualification, occupation, type of work, area of residence, type of family, food habits and previous knowledge about acupressure with the level of coping in the experimental group after scalp acupressure. The frequency of the women who were able to do 3R's was zero before scalp acupressure. Thus the null hypothesis Ho_2 was retained. Hence statistics could not be applied to find the association between selected demographic variables and the level of coping before scalp acupressure.

Table 15

Association Between the Selected Obstetric Variables and Level of Labour Pain After Therapy in Control Group of Primiparturient Women. (Gestational Age in Weeks, Duration of First Stage of labour, Duration of Second Stage of Labour, APGAR score of the Newborn, Birth Weight of the Baby).

Obstetric Variables	Level of Pain (n=30)		df	χ^2
	Moderate Pain	Severe Pain		
Gestational age in weeks				
37 - 38	-	2	1	0.533
39 - 40	3	25		
Number of antenatal visits				
No visit				
≤ 4	0	3	1	0.363
> 4	3	24		
Pain management during first stage of labour				
Analgesia	0	0	1	0
None	3	27		
Type of delivery				
Normal vaginal delivery	3	26	1	0.116
Other mode of delivery	0	1		
Duration of first stage of labour				
< 10 hours	-	6		
10 - 14 hours	3	19	2	1.2
> 14 hours	-	2		
Duration of Second stage of labour				
< 1 hour	3	26	1	1.831
1 - 2 hr	-	1		

Duration of third stage of labour				
< 10 minutes	3	22	1	0.66
10-20 minutes	0	5		
APGAR score of the newborn				
4 - 6	-	1	1	1.826
7 - 10	3	26		
Birth weight of the baby				
2 - 2.5 kg	-	7		
2.5 - 3 kg	3	16	2	1.91
> 3 kg	-	4		

The above table interprets that there is no association between gestational age, number of antenatal visits, pain management, type of delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn and birth weight of the newborn with the level of labour pain after scalp acupressure in the experimental group. Hence null hypothesis Ho_3 was retained. The association between selected obstetric variables and level of labour pain before scalp acupressure in the control group cannot be calculated as the frequency of having moderate pain was zero.

Table 16

Association Between the Selected Obstetric Variables and Level of Labour Pain After Scalp Acupressure in Experimental Group of Primiparturient Women. (Gestational Age in Weeks, Duration of First Stage of labour, Duration of Second Stage of Labour, APGAR score of the Newborn, Birth Weight of the Baby).

Obstetric Variables	Level of Pain (n=30)		df	χ^2
	Moderate Pain	Severe Pain		
Gestational age in weeks				
37 - 38	1	-	1	1.831
39 - 40	26	3		
Number of antenatal visits				
No visit				
≤ 4	2	0	1	0.231
> 4	25	3		
Pain management during first stage of labour				
Analgesia	0	0	1	0
None	27	3		
Type of delivery				
Normal vaginal delivery	27	3	1	0
Other mode of delivery	0	0		
Duration of first stage of labour				
< 10 hours	26	2	1	0.535
10 - 14 hours	1	1		
Duration of Second stage of labour				
< 1 hour	27	3	1	0.092
1 - 2 hr	-	-		

Duration of third stage of labour				
< 10 minutes	27	3	1	0
10-20 minutes	0	0		
APGAR score of the newborn				
< 3	-	-		
4 - 6	-	-	1	0
7 - 10	27	3		
Birth weight of the baby				
2 - 2.5 kg	5	-		
2.5 - 3 kg	14	2	2	0.678
> 3 kg	8	1		

Table 13 reveals that there is no association between gestational age, number of antenatal visits, pain management, type of delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn and birth weight of the newborn with the level of labour pain after scalp acupressure in the experimental group. Hence null hypothesis Ho_3 was retained. The frequency of women having severe pain before scalp acupressure was zero and hence no statistics could be applied to find the association.

Table 17

Association Between the Selected Obstetric Variables and Level of Coping After Scalp Acupressure in Control Group of Primiparturient Women. (Gestational Age in Weeks, Duration of First Stage of labour, Duration of Second Stage of Labour, APGAR score of the Newborn, Birth Weight of the Baby).

Obstetric Variables	Level of Coping (n=30)		df	$\chi 2$
	Needs lot of help	Able to do 3 R's		
Gestational age in weeks				
37 - 38	2	-	1	0.154
39 - 40	23	5		
Number of antenatal visits				
No visit				
$\leq$ 4	23	4	1	0.66
> 4	2	1		
Pain management during first stage of labour				
Analgesia	0	0	1	0
None	25	5		
Type of delivery				
Normal vaginal delivery	24	5	1	0.162
Other mode of delivery	1	0		
Duration of first stage of labour				
< 10 hours	5	1		
10 - 14 hours	18	4	2	0.444
> 14 hours	2	-		
Duration of Second stage of labour				
< 1 hour	24	5	1	1.231
1 - 2 hr	1	-		

Duration of third stage of labour				
< 10 minutes	21	4	1	3.563
10-20 minutes	4	1		
APGAR score of the newborn				
4 - 6	1	-	1	1.231
7 - 10	24	5		
Birth weight of the baby				
2 - 2.5 kg	6	1		
2.5 - 3 kg	15	4	2	1.083
> 3 kg	4	-		

It can be inferred from the Table 16 that there is no association between gestational age, number of antenatal visits, pain management, type of delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn and birth weight of the newborn with the level of coping after scalp acupressure in the control group. Hence the null hypothesis Ho_3 was retained. No association can be found between selected obstetric variables and the level of coping before scalp acupressure in the control group as the frequency of women who were able to do 3 R's was zero.

Table 18

Association Between the Selected Obstetric Variables and Level of Coping After Scalp Acupressure in Experimental Group of Primiparturient Women. (Gestational Age in Weeks, Duration of First Stage of labour, Duration of Second Stage of Labour, APGAR score of the Newborn, Birth Weight of the Baby).

Obstetric Variables	Level of Coping (n=30)		df	χ^2
	Needs lot of help	Able to do 3 R's		
Gestational age in weeks				
37 - 38	1	-	1	0.822
39 - 40	3	26		
Number of antenatal visits				
No visit				
$\leq$ 4	1	1	1	3.55
> 4	3	25		
Pain management during first stage of labour				
Analgesia	0	0	1	0
None	4	26		
Type of delivery				
Normal vaginal delivery	4	26	1	0
Other mode of delivery	0	0		
Duration of first stage of labour				
< 10 hours	3	25	1	0.189
10 - 14 hours	1	1		
Duration of Second stage of labour				
< 1 hour	4	26	1	0.071
1 - 2 hr	-	-		

Duration of third stage of labour				
< 10 minutes	4	26	1	0
10-20 minutes	0	0		
APGAR score of the newborn				
4 - 6	-	-	1	0.071
7 - 10	4	26		
Birth weight of the baby				
2 - 2.5 kg	1	4		
2.5 - 3 kg	2	14	2	0.24
> 3 kg	1	8		

The presented data from Table 15 reveals that there is no association between gestational age, number of antenatal visits, pain management, type of delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn and birth weight of the newborn with the level of coping after scalp acupressure in the experimental group. Hence the null hypothesis Ho_3 was retained. As the frequency of women who were able to do 3R's was zero before scalp acupressure, no statistics could be applied to find the association between selected obstetric variables and the level of coping.

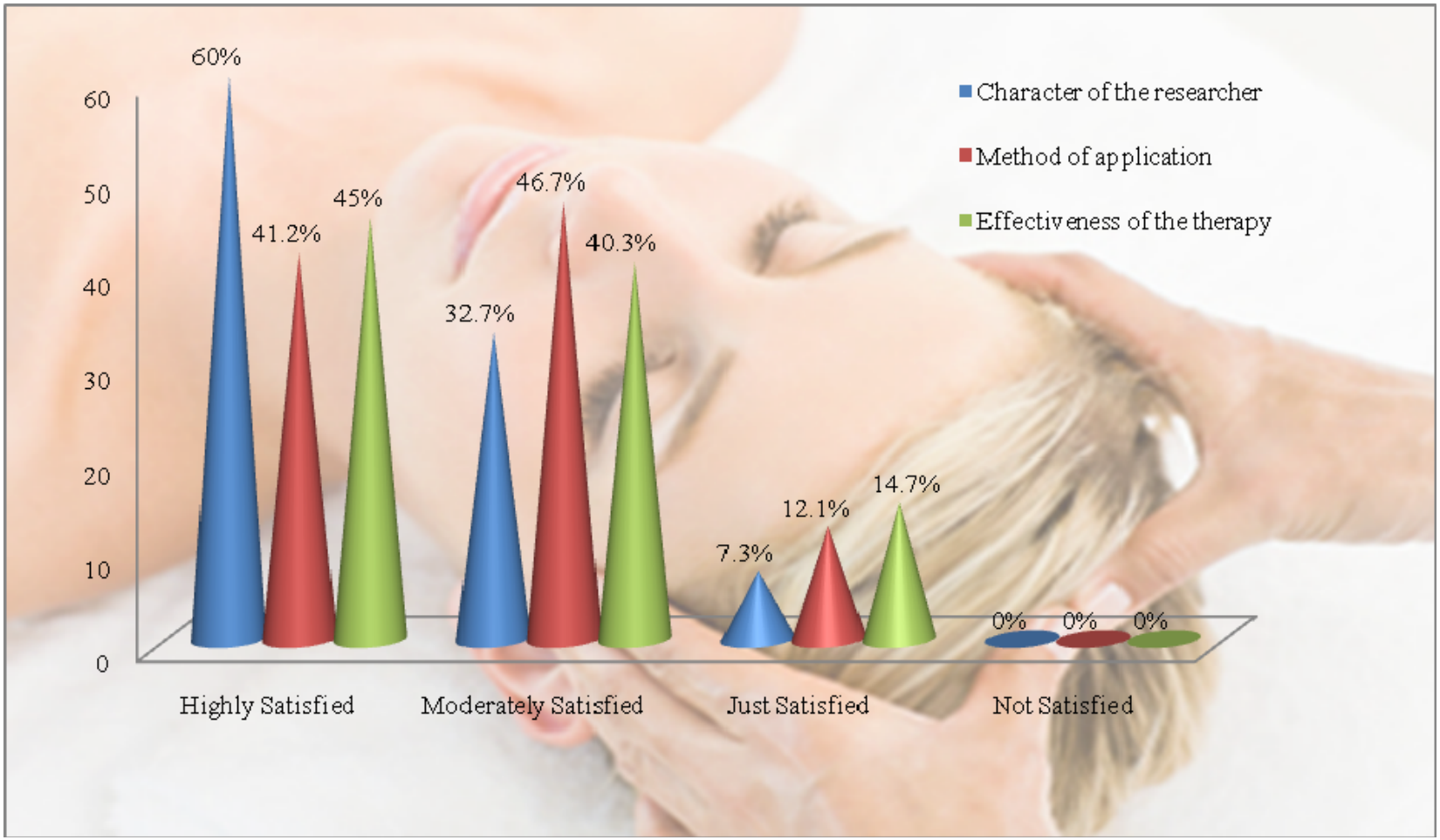

Fig.9 Percentage Distribution of Level of Satisfaction of Scalp Acupressure in the Experimental Group of Primiparturient Women.

Summary

This chapter dealt with the analysis and the interpretation of the data collected by the researcher. From the analysis it can be inferred that the level of labour pain was low and level of coping was high after therapy in the experimental group than the control group. Thus it shows that the scalp acupressure was effective in reducing labour pain perception during the first stage of labour among the primiparturient women.

CHAPTER V

DISCUSSION

STATEMENT OF THE PROBLEM

An experimental study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient women in the first stage of labour at St.Antony's Hospital, Chennai.

OBJECTIVES OF THE STUDY

The objectives of the study are

1. To assess the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
2. To compare the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
3. To determine the level of satisfaction upon scalp acupressure among experimental group of primiparturient women.
4. To find out the association between the selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.
5. To find out the association between the selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.

This study was carried out for the primiparturient mother who were in the active and transition phase of labour at St. Antony's hospital. The level of labour pain, coping level and

feto maternal parameters were assessed for the control and experimental group of primiparturient women and scalp acupressure was provided for the experimental group of primiparturient women every one hour and the pain level, coping level and feto maternal parameters were assessed again for both the groups. The level of satisfaction upon scalp acupressure was assessed among the experimental group of women after the labour.

The discussion is presented under the following headings:

- Demographic variables and Obstetric variables of control and experimental group of primiparturient women.
- Mean and standard deviation of level of labour pain, coping level before and after scalp acupressure among control and experimental group of primiparturient women.
- Assessment of level of satisfaction upon scalp acupressure among the experimental group of primiparturient women.
- Association between selected demographic variables and level of labour pain and coping after scalp acupressure among control and experimental group of primiparturient women.
- Association between selected obstetric variables and level of labour pain and coping after scalp acupressure among control and experimental group of primiparturient women.

Demographic variables of primiparturient women

Most of the women in both the control and experimental group were between the age group of 20 – 24 years (66.7%, 66.7%) which shows that most of them are aware about the right age of reproduction. It is also noted that 3.3% of the control group and none in the experimental group delivered after 30 years of age which emphasizes that there is less risk of developing complications during the antenatal period. This view was supported by Rajaee et al (2008) that women with two extremes of age group were prone to have adverse pregnancy outcome which is comparatively low between 20 – 30 years of age.

The educational qualification of the women shows that most of them in the control group had only secondary education (53.4%) whereas significant number of women in the experimental group were graduates (50%) and majority of them in both the control and experimental group were moderate workers (93.3%, 83.3%) respectively. As women with inadequate education may have inadequate information regarding health care practices, the researcher felt that doing graduation helps mother in better understanding about labour process and better coping and thus all the women should be encouraged to do their graduations in addition to schooling.

Significant number of women in the control group belongs to semi – urban area (46.6%) whereas the women of the experimental group were almost equally distributed between rural, semi – urban and urban areas (33.3%, 36.7% and 30%) respectively. Though the women were equally distributed in different areas of residence they seek good medical advice and are aware about the advantages of taking adequate antenatal care thus reducing the incidence of complications during delivery.

Among the women of both the control and experimental group, majority of them belong to nuclear family (73.3%, 73.3%) and all the women of both the group were nonvegetarians (100%, 100%) respectively. The researcher feels that as the responsibility to care other family members were less in the nuclear families, it promotes the mother to seek antenatal care with the support of their spouse and all were aware about the best dietary practices to be followed during pregnancy which is appreciable.A survey published by Allendorf in the journal “Studies in family planning” (2010) which was conducted in India quotes that among nuclear families, women with better marital relationships are more likely than others to use antenatal care services and to deliver in a health-care facility. Langley and Alison in their study carried out in 2001 states that vegetarians were more likely to develop gestational diabetes and were more likely to have a caeserean section.

Majority of the women in the control and experimental group did not receive previous information about acupressure (80%, 83.3%) which shows that they were not familiar with the various pain relief measures. Hence it is the duty of the nurse midwives to explain the women about various methods available for pain relief during labour.

Obstetric variables of the primiparturient women

Majority of the women in the control and experimental group were between 39 – 40 weeks of gestation (93.3%, 96.7%) during delivery and none of them were beyond 40 weeks. This proves that risk of preterm labour and maternal complications was reduced with regular antenatal checkups and screening methods and the health care workers assists mother in delivering the baby at the right time without leading to post term labour. This view was

supported by Heimstad et al (2006) in the study conducted at the Department of Obstetrics and Gynecology and National Center for Fetal Medicine, Norway that maternal complications were lowest at 39 weeks of gestation compared to preterm and post term labour.

More than five antenatal visits (90%, 93.3%) and normal vaginal delivery (96.7%, 100%) by majority of the women in both the control and experimental group of primiparturient women emphasizes that most of the women were aware about the importance of regular antenatal checkup thus reducing the abnormal deliveries. It is felt by the researcher that recent advances in the health care services improved the outcome of labour through increased antenatal visits. It is also noted that none of them had any type of pain management during labour in both the control and experimental group of primiparturient women, thus reducing the incidence of complicated deliveries. Walker and Brein (1999) say that epidural analgesia or anesthesia and other pain management was associated with increased rates of instrumental and cesarean delivery.

The duration of first stage of labour was between 10 – 14 hours (73.3%) in the control group in majority of the women when compared with experimental group who had duration of first stage of labour less than 10 hours (93.3%) by which the researcher identifies that scalp acupressure helps to reduce the duration of first stage of labour which was evident from the study conducted by Lee et al in the year 2004 stating that labor time during the first stage was significantly lesser in the SP 6 acupressure group than the control group.

Among the women participated in the study, majority of the women in the control group and all the women in the experimental group had duration of second stage of labour less than one hour (96.7%, 100%) and duration of third stage of labour less than 10 minutes (83.3%, 100%) respectively. Thus the researcher felt as the acupressure has improved the progress of labour with lesser duration of first stage of labour; this could be used by the midwives for the parturient women. A study conducted by Rouse et al (2009) insists that the adverse maternal outcomes are associated with duration of second stage of labour. Hence it is important to reduce the duration of second stage of labour using alternative and complementary therapies.

Majority of the newborn in the control group and all the newborns in the experimental group had APGAR score of 7 – 10 (96.7%, 100%) and none of them had APGAR less than three in both the group. It is the researcher's view that reducing the duration of labour has influence on improving the fetal outcome. Most of the women in the control and experimental group had baby with the weight of 2.5 – 3 kg (63.4%, 53.3%) respectively. This shows that women were aware about the expected weight gain of the baby during the antenatal period and practice habits accordingly. But still this knowledge should be improved among all women which would help in delivering healthy babies in future.

Mean and Standard Deviation of pain level before and after scalp acupressure in the control and experimental group of primiparturient women

All the women in the control group had severe pain (100%) before scalp acupressure and majority of them also had severe pain (90%) after scalp acupressure.

The mean and standard deviation of the pain level was higher after scalp acupressure (M=8.95, SD=0.83) in the control group when compared with pain level before scalp acupressure (M=7.4, SD=0.51). Whereas all the women in the experimental group had severe pain (100%) before scalp acupressure but majority had only moderate pain (90%) after scalp acupressure. Thus the mean and standard deviation of the pain level after scalp acupressure (M=5.63, SD=0.66) was lower than the pain level before scalp acupressure (M=7.86, SD=0.34) in the experimental group of primiparturient women.

Similarly the mean pain level in all the eight observations of the control group before scalp acupressure (M=5.1, SD=0.66 in first observation to M=9.86, SD=0.36 in eighth observation) was lesser when compared with the experimental group (M=5.83, SD=0.59 in first observation to M=10, SD=0 in eighth observation), whereas the mean pain level in all the observations of control group was higher after scalp acupressure(M=5.7, SD=0.87 to M=9.79, SD=0.42) when compared with the experimental group (M=4.4, SD=0.56 to M=7, SD=0) of primiparturient women in the first and eighth observation respectively.

This shows that the scalp acupressure was effective in reducing the level of labour pain perception. Many women need some type of pain relieving measures to deal with pain during childbirth. The management of labour pain is a primary responsibility of the nurse. Interventions to reduce pain perception are one of the essential aspects of nursing care that must be considered during a woman's labour. Because of its strong effect on pain management, scalp acupressure can be used by the nurse midwife in assisting the mother with labour pain.

Similar study was conducted by Bo and Zhang in the year 2006 which showed that scalp acupressure provided in the shenghi area of scalp reduced the pain perception among the parturient women at $p<0.01$ level of confidence and decreased the duration of labour when compared with the control group at $p<0.05$ level of confidence. Thus scalp acupressure was found to be effective in managing the women with labour pain.

Mean and Standard deviation of coping level before and after scalp acupressure in the control and experimental group of primiparturient women

All the women needed lot of help before scalp acupressure (100%) and majority of them still needed lot of help after scalp acupressure (83.3%) in the control group. But majority of the women in the experimental group were able to do 3 R's after scalp acupressure (86.7%) with all of them in need of lot of help before scalp acupressure (100%). The mean and standard deviation of coping level in the control group after scalp acupressure (M=2.00, SD=1.01) was lower when compared with before scalp acupressure (M=5.36, SD=0.23) whereas the mean and standard deviation of coping level after scalp acupressure (M=6.01, SD=0.96) was higher in the experimental group compared to before scalp acupressure (M=1.9, SD=0.22).

On assessing the coping level of each observation it was found that the mean coping level of control group (M=3.8, SD=1.18 in first observation to M=0.33. SD=0.9 in eighth observation) was reduced after scalp acupressure when compared with experimental group (M=4.9, SD=0.84 to M=3, SD=0) whereas the mean coping level of primiparturient women in all the observations of control group (M=6.77, SD=0.56 to M=1.47, SD=1.18) was higher

than the experimental group (M=3.67, SD=0.47 to M=0, SD=0) before scalp acupressure in first and eighth observation respectively.

A study conducted by Abushaikha among Jordanian women describes that they used different coping methods which included physiological, psychological, spiritual and cognitive methods to cope during labour. Thus it is the responsibility of every nurse midwife to understand the importance of using various coping methods during labour.

Feto maternal parameters of the primiparturient women

Among the feto maternal parameters of the primiparturient women a significant difference was found in the duration and frequency of uterine contraction. The mean and standard deviation of frequency of uterine contraction were almost same before (M=3.5, SD=0.2) and after scalp acupressure (M=3.7, SD=0.06) in the control group. Whereas the mean and standard deviation of frequency of uterine contraction in the experimental group was reduced after scalp acupressure (M=3.2, SD=0.14) compared to before scalp acupressure (M=4.14, SD=0.22).

This shows that scalp acupressure increases the uterine contraction duration and reduces the uterine contraction frequency thus reducing the duration of labour for the primiparturient women. A study conducted by Kashanian and Shahali in 2010 to assess the effect of acupressure at sanyinjiao point proved the above finding that acupressure reduced both the labour pain and the duration at the active phase of labour with duration of 252.37 vs. 441.38 min at $P<0.0001$ level of confidence.

Level of satisfaction on scalp acupressure among primiparturient women

Majority of the women were highly satisfied (96.7%) with scalp acupressure and none of them had low satisfaction towards the therapy. This interprets that scalp acupressure was highly effective in reducing the labour pain perception and improving the coping of the women. Though there are many techniques to reduce the labour pain perception, most of them are invasive or has adverse effects on the mother or the baby. But acupressure is a type of non-invasive procedure that has good effect on reducing the labour pain perception without affecting the mother or the baby. Thus the midwives should understand the importance of using pain relief methods which is harmless and they should be encouraged in practicing such therapies.

An obstetrical and gynaecological survey (2009) on comparing the satisfaction of TENS and acupressure for labour pain shows that 53% of the participants in the acupressure group preferred acupressure for their next pregnancy whereas 66% of the participants in the control group had negative outcome towards TENS for their next pregnancy proving that women are satisfied about the use of acupressure for labour pain.

Association between selected demographic variables and level of labour pain and coping after scalp acupressure in the control and experimental group of primiparturient women

In both the control and experimental group of primiparturient women no significant association was found between demographic variables and the level of labour pain which

proves that demographic variables has no influence over the pain perception. Hence some type of pain relief methods has to be provided for the women in reducing the pain.

Similarly no association was found between demographic variables and the level of coping in both the control and experimental group of primiparturient women. This shows that demographic variables may not alter the coping level of the women and hence it is the responsibility of the nurse midwife to help the mother in coping with the labour pain.

No association could be found between demographic variables and level of labour pain and coping before scalp acupressure as all the women experienced severe pain and needed lot of help in the control and experimental group respectively. This was supported by a study conducted by Saraswathi (2010) on assessing the effect of ice application on energy meridian points where was no association between the age, education, area of residence with that of the labour pain.

Association between selected obstetric variables and level of labour pain and coping after scalp acupressure in the control and experimental group of primiparturient women

No significant association was found between the obstetric variables and the level of labour pain in both the control and experimental group of primiparturient women and similarly no association between the obstetric variables and level of coping was found in both the groups which emphasizes that obstetric variables has no influence over the pain perception and coping level of the women and necessitates provision of external agent in

reducing the labour pain perception and improving the coping level. As everybody in the control and experimental group experienced only severe pain and needed lot of help before scalp acupressure no statistics could be applied to find the association between selected obstetric variables and the level of labour pain and coping.

Summary

This chapter has dealt about the discussion of various aspects of the study findings. This emphasized on the demographic variables and obstetric variables of the primiparturient women. It has also dealt about the mean and standard deviation of level of labour pain, coping and feto maternal parameters before and after scalp acupressure in control and experimental group, association between selected demographic variables with level of labour pain and coping after scalp acupressure and association between selected obstetric variables with the level of labour pain and coping after scalp acupressure in both the control and experimental group of primiparturient women with supporting studies.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

Summary

This study was conducted by the researcher to find the effectiveness of scalp acupressure upon labour pain among the primiparturient women during the active and transition phase of first stage of labour.

The objectives of the study

1. To assess the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
2. To compare the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure in the control and experimental group of primiparturient women.
3. To determine the level of satisfaction upon scalp acupressure among experimental group of primiparturient women.
4. To find out the association between the selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.
5. To find out the association between the selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women.

Null Hypotheses

Ho_1 There will be no significant difference in the level of labour pain, coping and feto-maternal parameters before and after scalp acupressure between the control and experimental group of primiparturient women at the level of $p<0.05$.

Ho_2 There will be no significant association between selected demographic variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women at the level of $p<0.05$.

Ho_3 There will be no significant association between selected obstetric variables and the level of labour pain and coping before and after scalp acupressure in the control and experimental group of primiparturient women at the level of $p<0.05$.

The major findings of the study

Demographic variables of the primiparturient women

Most of the women in the control and experimental group were between the age group of 20 – 24 years (66.7%, 66.7%), homemakers (90%, 83.3%) and moderate workers (93.3%, 83.3%) respectively. When most of the women in the control group had only secondary education (53.4%) the women in the experimental group were graduates (50%). The women in the control group were mostly residing at semi-urban area (46.6%) but the women in the experimental group were almost equally distributed between areas of rural (33.3%), semi-urban (363.7%) and urban areas (30%) respectively. Majority of the women in both the control and experimental group belonged to a nuclear family (73.3%, 73.3%) and received no previous knowledge about acupressure (80%, 83.3%) and all the women in both the group were nonvegetarians (100%, 100%).

Obstetric variables of the primiparturient women

Majority of the women in the control and experimental group were in the gestational age of 39 – 40 weeks (93.3%, 96.7%) and had more than five antenatal visits (90%, 93.3%) respectively. All the women in both the group had no pain management (100%, 100%) and majority in the control group had normal vaginal delivery (96.7%) with all being in the experimental group (100%). Majority of the women in the control group had duration of first stage of labour between 10 – 14 hours (73.3%) but in the experimental group the duration was less than ten hours (93.3%). Similarly all the women in the experimental group had duration of second and third stage of labour less than one hour (100%) and less than ten minutes (100%) respectively with only majority being in the control group (96.7%, 83.3%). Most of the women in both the control and experimental group had birth weight of the baby between 2.5 – 3 kg (53.3%, 63.4%).

Level of labour pain in the primiparturient women

All the women in the control and experimental group had severe pain (100%, 100%) before scalp acupressure but majority of the women in the control group had severe pain (90%) after scalp acupressure with majority in the experimental group having moderate pain (90%) after scalp acupressure. The mean and standard deviation of level of labour pain after scalp acupressure (M=8.95, SD=0.83) was higher in the control group when compared with labour pain before scalp acupressure (M=7.4, SD=0.51) whereas the mean and standard deviation of the level of labour pain was lower after scalp acupressure (M=5.63, SD=0.66) in

the experimental group when compared with labour pain before scalp acupressure (M=7.86, SD=0.34).

Similarly the mean pain level in all the eight observations of the control group before scalp acupressure (M=5.1, SD=0.66 in first observation to M=9.86, SD=0.36 in eighth observation) was lesser when compared with the experimental group (M=5.83, SD=0.59 in first observation to M=10, SD=0 in eighth observation), whereas the mean pain level in all the observations of control group was higher after scalp acupressure(M=5.7, SD=0.87 to M=9.79, SD=0.42) when compared with the experimental group (M=4.4, SD=0.56 to M=7, SD=0) of primiparturient women in the first and eighth observation respectively. This insists the effectiveness of scalp acupressure in reducing the labour pain perception among the primiparturient women during the first stage of labour which was statistically proven at $p<0.001$ level of confidence.

Level of coping in the primiparturient women

On comparing the coping level between the control and experimental group, it could be revealed as follows. All the women in both the group needed lot of help before scalp acupressure (100%, 100%). But after scalp acupressure majority need lot of help (83.3%) in the control group with majority of the mother being able to do 3 R's (86.7%) in the experimental group. The mean and standard deviation of coping level in the control group was lower after scalp acupressure (M=2.00, SD=1.01) than coping level before scalp acupressure (M=5.36, SD=0.23) and the mean and standard deviation of coping level in the

experimental group was higher after scalp acupressure (M=6.01, SD=0.96) compared to coping level before scalp acupressure (M=1.9, SD=0.22).

On assessing the coping level of each observation it was found that the mean coping level of control group (M=3.8, SD=1.18 in first observation to M=0.33. SD=0.9 in eighth observation) was reduced after scalp acupressure when compared with experimental group (M=4.9, SD=0.84 to M=3, SD=0) whereas the mean coping level of primiparturient women in all the observations of control group (M=6.77, SD=0.56 to M=1.47, SD=1.18) was higher than the experimental group (M=3.67, SD=0.47 to M=0, SD=0) before scalp acupressure in first and eighth observation respectively. Thus it infers that the scalp acupressure helps the mother in coping with the labour pain which was significant at $p<0.001$ level.

Feto maternal parameters of the primiparturient women

The mean and standard deviation of the frequency of uterine contraction in the experimental group was lower after scalp acupressure (M=3.2, SD=0.14) compared to before scalp acupressure (M=4.14, SD=0.22) and duration of uterine contraction was higher after scalp acupressure (M=49.5, SD=3.51) compared to before scalp acupressure (M=41.4, SD=3.21). No significant difference was found before and after scalp acupressure in other feto maternal parameters like fetal heart rate, maternal pulse rate, systolic blood pressure and diastolic blood pressure. The mean cervical dilatation in the experimental group (M=7.44, SD=0.26) was greater than the control group (M=6.49, SD=0.44). This is evident at $p<0.05$ level of confidence and proves that scalp acupressure improves the progress of labour with reducing the duration of labour.

Level of satisfaction upon scalp acupressure

Majority of the women were highly satisfied 96.7% with scalp acupressure and none of them reported low satisfaction.

Association between selected demographic variables and level of labour pain and coping in primiparturient women

No association was found between demographic variables and the level of labor pain and coping after scalp acupressure in both the control and experimental group of primiparturient women. This shows that demographic variable has no influence in the pain perception and coping level. As all the women in the control and experimental group had severe pain and needed lot of help before scalp acupressure no statistics could be applied to find the association between demographic variables and level of labour pain and coping before scalp acupressure.

Association between selected Obstetric variables and level of labour pain and coping in primiparturient women

It was found that there was no association between obstetric variables and the level of labour pain and coping after scalp acupressure in both the control and experimental group of primiparturient women. The association cannot be found between obstetric variables and level of labour pain and coping before scalp acupressure as all the women in both the group had severe pain and needed lot of help. Thus it could be interpreted that obstetric variables has no influence on the level of labour pain and coping.

Conclusion

This study shows that scalp acupressure was effective in reducing the labour pain perception and improving the coping level. The experimental group of women who received scalp acupressure had decreased pain perception and was highly satisfied with the therapy. The scalp acupressure is a non – invasive procedure and has no adverse effects on the mother and the fetus and hence the midwives could be encouraged to use this as a pain relief method during labour.

Implications

Nursing Practice:

The parturient women of the experimental group felt less pain perception and improved coping with the use of scalp acupressure during the first stage of labour than the control group proving it to be effective to use. The intensity of labour pain, the length of time labour lasts and women's response to the pain vary widely. The environment in which the women give birth and the support they receive from their care givers and companions will also affect their reaction to pain and their ability to cope. Many women opt to use some form of pain relieving method to help them cope during labour. Hence it becomes a necessity for the midwives to have adequate knowledge and skill about various non-pharmacological methods. Though there is availability of various non-pharmacological methods, acupressure technique is noninvasive, safe and effective. Thus nurses should use acupressure as noninvasive, safe and effective treatment modalities in their practices.

Nursing Education:

The nursing profession has a long history of viewing and caring for individuals in a holistic manner. A national conference conducted by National Institutes of Health of Alternative Medicine and the Uniformed Services University of Health Sciences concluded that nursing and medical education should include information about complementary and alternative therapies. Nurse educators should consider the inclusion of complementary and alternative therapies in nursing curricula with increasing frequency and motivation by major part of the public for the use of these therapies. Inherent in the nurse's role is the ability to assess, intervene and evaluate preventive, supportive, and restorative functions of a patient's physical, emotional, mental and spiritual domains. This should be emphasized to the nursing students through educating them about the various therapies that helps the patients in providing care to meet the above aspects.

Nursing Administration:

With the advent of various technologies in the field of nursing, nurses are expected to be skillful in various aspects of providing care for which student nurses has to be trained in it through their education. Thus it is the responsibility of the nurse administrators to include the concept of alternative and complementary therapies in the nursing curricula. The nursing staffs and the nursing students should be encouraged by the nurse administrators to learn various nursing modalities in caring patients and could conduct certifying courses which would help them to practice alternative and complementary therapies.

Nursing Research:

The competence of a registered nurse to perform the skills of complementary and alternative therapies begins with nursing education and ends with nursing practice which requires an evidence to give assurance that the knowledge and practice gained by the nurse are safe and provides comfort for the patients. Thus major research has to be promoted and conducted by the nurse researchers to prove the effectiveness of alternative and complementary therapies in nursing profession.

Recommendations

- The same study can be conducted with larger number of samples.
- A comparison can be made between primi and multi gravidae.
- A comparison can be made with different stages of labour.
- The same study can be conducted at different setting.
- A comparison can be made between different types of alternative and complementary therapies.

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APPENDIX - I

Apollo College of Nursing

(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/1019/101 **23.03.11**

To

The Administrator ,
St. Antony's Hospitals,
Madhavaram
Chennai – 600 060.

Respected Sir / Madam,

Sub.: To request permission for research study – Reg.

Greetings! As part of the curriculum requirement our 2nd year M. Sc. (N) student

Ms.M.Kanaga Durga has selected the following title for her research study.

"An Experimental Study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient mothers in the first stage of labour at selected Hospital, Chennai".

So I kindly request your goodselves to permit her to conduct study in your esteemed institution.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL

Accepted
S. Magdalie
ST. ANTONY'S HOSPITAL
CHENNAI-600 060. T.N.

Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095.
Ph. : 044 - 2653 4387 Tele fax : 044 - 2653 4923 / 044- 2653 4386

APPENDIX – II

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From

MS. M.Kanaga Durga,
M.Sc., (Nursing) Second Year,
Apollo College of Nursing,
Chennai - 600095.

To

Forwarded Through:
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

Sub: **Requesting for opinions and suggestions of experts for establishing content validity for Research tool**.

Respected Madam,

I am a postgraduate student of the Apollo College of Nursing. I have selected the below mentioned topic for research project to be submitted to The Tamil Nadu Dr. M.G.R Medical University, Chennai as a partial fulfillment of Masters of Nursing Degree.

TITLE OF THE TOPIC:

An experimental study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient women in the first stage of labour at Selected Hospital, Chennai.

With regards may I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing the Background, Need for the study, Statement of the problem, Objectives of the study, Demographic Variable Proforma, Obstetric Variable Proforma, Modified Pain Intensity Scale, Coping scale, WHO modified Partogram, and Rating Scale on Level of Satisfaction of women with scalp acupressure for your reference. I would be highly obliged and remain thankful for your great help if you could validate and send it as soon as possible.

Thanking you,

Yours sincerely,
(M.KANAGA DURGA)

APPENDIX – III

List of experts for content validity of the tool

1. **Dr. Latha Venkatesan, M.Sc., M.Phil., Ph.D.,**
   Principal,
   Apollo College of Nursing,
   Chennai – 95.

2. **Dr. Nirmala Jayasankar, F.R.C.O.G., M.D., D.G.O.,**
   Consultant Obstetrician & Gynaecologist,
   Apollo First Med Hospitals,
   Chennai – 10.

3. **Prof. Mrs. Lizy Sonia, M.Sc (N).,**
   Vice Principal,
   Apollo College of Nursing,
   Chennai – 95.

4. **Ms. Shobana, M.Sc (N).,**
   Professor,
   Apollo College of Nursing,
   Chennai – 95.

5. **Ms. Kanimozhi, M.Sc (N).,**
   Assistant Lecturer,
   Apollo College of Nursing,
   Chennai – 95.

6. **Ms. Pappy Yuvarani, M.Sc (N).,**
   Lecturer,
   Apollo college of Nursing,
   Chennai – 95.

7. **Ms. Saraswathi, M.Sc (N).,**
   Lecturer,
   Apollo College of Nursing,
   Chennai – 95.

APPENDIX IV

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

22 June, 2011

To
Ms. M. Kanaga durga
1st Year M.Sc (Nursing)
Dept. of Obstetrics & Gynaecology
Apollo College of Nursing, Chennai
Tamil Nadu, India

Ref: An experimental study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient mothers in the first stage of labour pain at selected hospitals, Chennai

Sub: Your letter dated 9 June, 2011 for approval of the above referenced project and its related documents

Dear Ms M. Kanaga durga,

Ethics committee – Apollo Hospitals has received the following document submitted by you related to the conduct of the above – referenced study.

- Project "An experimental study to assess the effectiveness of scalp acupressure upon labour pain among prim parturient mothers in the first stage of labour pain at selected hospitals, Chennai"
- Study Performa
- Informed consent form

The above-mentioned documents have been reviewed and approved (through expedited review) by the Chairman, Vice-Chairman and Member Secretary at a specially convened meeting of the Ethics Committee. The study is hereby approved to be conducted by you in the presented form.

The following Ethics Committee members were present at the meeting held on 22 June, 2011

Name	Profession	Position in the committee
Mr. S. S. Narayanan	Ethicist	Chairman
Dr.Radha Rajagopalan	Clinician	Vice - Chairman
Dr. Jayanthi Swaminathan	Sr.GM Clinical & Collaborative Research	Member Secretary

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

Ethics Committee

Apollo HOSPITALS TOUCHING LIVES

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

Yours sincerely,

Radhakrishnan

Date 22/6/11

Dr. Radha Rajagopalan
Ethics Committee – Vice Chairman
Apollo Hospitals, Chennai

DR. RADHA RAJAGOPALAN
Vice Chairman
Ethics Committee
Apollo Hospitals Enterprise Limited
Chennai [illegible] Tamil Nadu

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

APPENDIX – V

GMCKS

Dr. VIJAY'S PHYSIO FIT

INSTITUTE OF ALTERNATIVE AND COMPLIMENTARY THERAPY

A unit of Dr.Vijay's Health Science and Research Foundation [regd no:430/09]

Date.20.03.2011.

WHOMSOEVER MAY BE CONCERN

This is to Certify that Ms. M. **KANAGA DURGA**. A student of M.Sc Nursing from APOLLO College of Nursing, Chennai-95, and Batch 2010-2012 had done her training in scalp acupressure for Labour pain in the **INSTITUTE OF ALTERNATIVE AND COMPLIMENTARY THERAPY** from 14.03.2011 to 20.03.2011.

The project work entitled "**AN EXPERIMENTAL STUDY TO ACCESS THE EFFECTIVENESS OF SCALP ACUPRESSURE UPON LABOUR PAIN AMONG PRIMIPARTURIENT MOTHERS IN THE FIRST STAGE OF LABOUR**". She has been trained in that topic and she is eligible to practice scalp acupressure for her research work and she is recommended to give scalp acupressure for 30 seconds at each point in the shenghi area of scalp every one hour.

20.03.2011.

Physiotherapy, Acupuncture, Pranic healing, Yoga therapy for,

- ☆ Ortho
- ☆ Neuro
- ☆ Cardio-Thoracic
- ☆ Pediatric
- ☆ Gynecological Care
- ☆ Diabetic Care
- ☆ Obesity Management
- ☆ Stress Management
- ☆ Physical Fitness

Clinic - 1

42/3, G.N.G.STREET, VARADHARAJAPURAM, AMBATTUR, CH -53

99406 79698, 98404 79406, 96000 19942

Clinic - 2

14,THEN PALANI ANDAVAR KOIL STREET, VINAYAGAPURAM, AMBATTUR, CH.53.

E.MAIL:vijai_prana@yahoo.co.in

APPENDIX – VI

RESEARCH PARTICIPANT'S CONSENT FORM IN ENGLISH

Dear Participant,

I am M. KANAGA DURGA, M.Sc. Nursing student of Apollo College of Nursing, Chennai. As a part of my study, I have selected a Research Project on "An Experimental Study to Assess the Effectiveness of Scalp Acupressure upon Labour pain among Primiparturient Women in the First Stage of Labour at Selected Hospital, Chennai."

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I ……, hereby give my consent to participate in the study.

Signature of the Participant

MuhŒ¢áÆš g§F bgWgtU¡fhd x¥ójš got«

m‹ã‰FÇa g§FbgWnthnu !

fdfJ®fh vD« m¥bghnyh brÉÈa® fšYÇÆ‹ ïu©lh« M©L KJfiy brÉÈa® khzÉah» eh‹, go¥ã‹ xU gFâahf, ãurÉ¡F« jhŒkh®fË‹ Kjš f£l ãurt tÈÆ‹ nghJ, tÈia Fiw¡F« bghU£L jiyÆš m¡Fãuõ® á»¢ir nk‰bfh©L x® MŒî brŒa cŸns‹. ï›thŒî ãurt neu¤â‹ nghJ tÈia Fiw¡f bgÇJ« ga‹gL«.

ï›thŒÉš jh§fŸ fyªJ bfh©L j§fË‹ gâšfis c©ikahfî«, btË¥gilahfî« TWkhW j§fis jhœikíl‹ nf£L¡ bfhŸ»nw‹. j§fË‹ gâšfŸ ïufáakhf ghJfh¡f¥gL« vd cWâaË¡»nw‹.

MŒthsÇ‹ ifbah¥g«

vD« eh‹ ï›thŒÉš fyªJbfhŸs r«kâ¡»nw‹

g§FbgWnthÇ‹ ifbah¥g«.

APPENDIX – VII

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation "**An experimental study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient mothers in the first stage of labour at St.Antony's Hospital, Chennai"** by Ms. M. Kanaga Durga, II Year M.Sc(N), Apollo College of Nursing was edited for English language appropriateness by

Signature

18/01/12

A. NAVIN, M.A., B.Ed., M.Phil.,
ASSISTANT PROFESSOR
DEPARTMENT OF ENGLISH

APPENDIX – VIII

CERTIFICATE FOR TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the tool for Demographic variable proforma, Modified Pain Intensity Scale, Pain coping scale, Rating Sale on the Level of Satisfaction on Scalp acupressure translated by Ms. M. Kanaga Durga, II Year M.sc (N) student, Apollo College of Nursing for her dissertation "**An experimental study to assess the effectiveness of scalp acupressure upon labour pain among primiparturient mothers in the first stage of labour"** was edited for Tamil language appropriateness by

M.A.B.Ed.

Signature

APPENDIX – IX

DEMOGRAPHIC VARIABLE PROFORMA

Purpose:

This proforma is used by the researcher to collect information on demographic variables such as age in years, educational qualification, occupation, type of work, area of residence, type of family, food habits, and previous knowledge about acupressure.

Instruction:

The investigator will collect data by interviewing the participants and with hospital records by making a tick mark to fill the details

Sample no: ☐

IP.no: ☐

1. Age in years

1.1 ≤ 19. ☐

1.2 20-24 ☐

1.3 25-29 ☐

1.4 ≥ 30 ☐

2. Educational qualification

2.1 Non-literate ☐

2.2 primary education ☐

2.3 secondary education ☐

2.4 Graduate ☐

2.5 Post graduate ☐

3. Occupation

3.1 Home makers ☐

3.2 Employed ☐

4. Type of work

4.1 Sedentary worker ☐

4.2 Moderate worker ☐

4.3 Heavy worker ☐

5. Area of residence

5.1 Rural ☐

5.2 Semi-Urban ☐

5.3 Urban ☐

6. Type of family

6.1 Nuclear ☐

6.2 Extended ☐

6.3 Joint ☐

7. Food Habits

7.1 Vegetarian ☐

7.2 Non-vegetarian. ☐

8. Previous knowledge about acupressure

8.1 Yes ☐

8.2 No ☐

9. If yes, source of information is from

9.1 Media ☐

9.2 Family members ☐

9.3 Previous experience ☐

9.4 Friends and neighbours ☐

9.5 Medical professionals ☐

9.6 Others ☐

bghJ Étu MŒt¿¡if

neh¡f« :

MŒthsuhš ga‹gL¤j¥gL« ï›thŒt¿¡ifahdJ j§fË‹ taJ, fšÉjFâ, bjhÊš, ntiyÆ‹ j‹ik, t»¥ãl«, FL«g j‹ik, czî Kiw, k‰W« m¡Fãuõ® F¿¤j K‹m¿î ngh‹w jftšfis nrfÇ¡f ga‹gL»wJ.

F¿¥ò :

ÑœtU« jftšfŸ MŒthsuhš ne®Kf fyªJiuahlš _yK«, kU¤Jtkid F¿¥ngLfË‹ thÆyhfî« nrfÇ¡f¥gL«.

rh«ãŸ v© :

I.ã. v© :

1. M©o‹go taJ

1.1 19

1.2 20- 24

1.3 25-29

1.4 30

2. fšÉ jFâ

2.1 fšÉa‰wt®

2.2 bjhl¡f fšÉ

2,3 ca®¡ fšÉ

2.4 g£l¥ go¥ò

2.5 g£l nk‰go¥ò

3. bjhÊš

3.1 FL«g guhkÇ¥ghs®

3.2 ntiy¡F bršgt®

4. ntiyÆ‹ j‹ik

4.1 Fiwªjg£r ntiy

4.2 Äjkhd ntiy

4.3 fod ntiy

5. tá¥ãl«

5.1 »uhk¥ gFâ

5.2 ef®òw¥ gFâ

5.3 efu¥ gFâ

6. FL«g¤ j‹ik

6.1 áW FL«g«

6.2 ÉÇªj FL«g

6.3 T£L¡ FL«g«

7. czî Kiw

7.1 irt«

7.2 mirt«

8**. m¡FãuZ® kU¤Jt« F¿¤J K‹Étu« c©lh?**

8.1 M«

8.2 ïšiy

9. M« vÅš, jftš m¿ªj Clf«

9.1 bjhiy bjhl®ò rhjd§fŸ

9.2 FL«g CW¥ãd®fŸ

9.3 K‹ mDgt«

9.4 e©g®fŸ k‰W« cwÉd®fŸ

9.5 kU¤Jt mDgt®fŸ

9.6 k‰wit

APPENDIX – X

OBSTETRIC VARIABLE PROFORMA

Purpose:

The proforma is used by the investigator to collect data on obstetric variables such as gestational age in weeks, number of antenatal visits, pain management during first stage of labour, type of delivery, indications of abnormal delivery, duration of first stage of labour, duration of second stage of labour, duration of third stage of labour, APGAR score of the newborn at birth and birth weight of the baby.

Instruction:

The hospital records will be used by the investigator to fill the following details.

1. Gestational age in weeks

1.1 37-38 ☐

1.2 39-40 ☐

1.3 41-42 ☐

2. Number of antenatal visits

2.1 No visit ☐

2.2 $\leq$ 4 ☐

2.3 > 5 ☐

3. Pain management during first stage of labour

3.1 Epidural analgesia ☐

3.2 Systemic analgesia ☐

3.3 Inhalation analgesia ☐

3.4 Combined analgesia. ☐

3.5 None ☐

4. Type of delivery

4.1 Normal vaginal delivery ☐

4.2 Vacuum delivery ☐

4.3 Forceps delivery ☐

4.4 Lower segment caesarean section ☐

5. Indications if the delivery is abnormal

5.1 Prolonged labour ☐

5.2 Obstructed labour ☐

5.3 Dystocia ☐

5.4 Fetal distress ☐

6. Duration of first stage of labour

6.1 <10 hours ☐

6.2 10-14 hours ☐

6.3 >14 hours ☐

7. Duration of second stage of labour

7.1 <1 hour ☐

7.2 1 hour – 2 hour ☐

7.3 >2hour ☐

8. Duration of third stage of labour

8.1 <10 minutes ☐

8.2 10 -20 minutes ☐

8.3 > 20 minutes ☐

9. APGAR score of the newborn at birth

9.1 < 3 ☐

9.2 4-6 ☐

9.3 7-10 ☐

10. Birth weight of the baby

10.1 < 2 kg ☐

10.2 2-2.5 kg ☐

10.3 2.5-3 kg ☐

10.4 >3 kg ☐

APPENDIX – XI

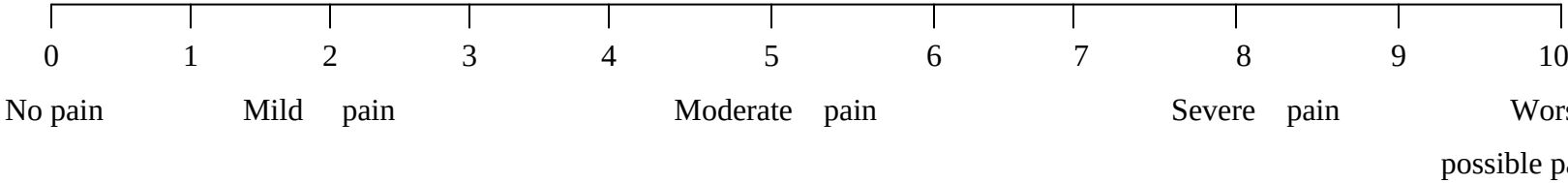
MODIFIED PAIN INTENSITY SCALE

Purpose:

The modified pain intensity scale will be used to measure the intensity of pain among primiparturient women before and after the use of scalp acupressure during the first stage of labour.

Instructions:

The investigator will assess the level of pain felt by the participant by asking them.



Scores		**Level of pain**
0	-	No pain
1-3	-	Mild pain
4-6	-	Moderate pain
7-9	-	Severe pain
10	-	Worst possible pain

PAIN ASSESSMENT

Hours								
Assessment of pain Before therapy								
After therapy								

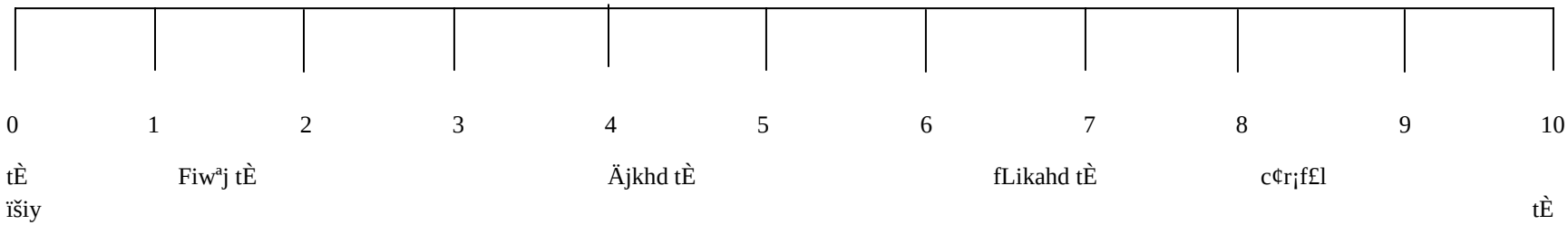
tÈ¤j‹ik msînfhŸ

neh¡f« :

tÈ¤j‹ik msînfhŸ ãurÉ¡F« jhŒkh®fËl« Kjš f£l ãurt tÈÆ‹nghJ m¡Fãuõ® á»¢ir¡F K‹D«, á»¢ir¡F ã‹ò« tÈÆ‹ msit bjÇªJ¡ bfhŸs ga‹gL»wJ.

F¿¥ò :

MŒths®, ãurÉ¡F« jhŒkh®fËl« nf£l¿jÈ‹ _y« tÈÆ‹ msit F¿¥ãLth®.



kâ¥ÕL		tÈÆ‹ msî
0	=	tÈ ïšiy
1-3	=	Fiwªj tÈ
4-6	=	Äjkhd tÈ
7-9	=	fLikahd tÈ
10	=	c¢r¡f£l tÈ

neu«	1	2	3	4	5	6	7	8
tÈ msî á»¢ir¡F K‹								
á»¢ir¡F ã‹								

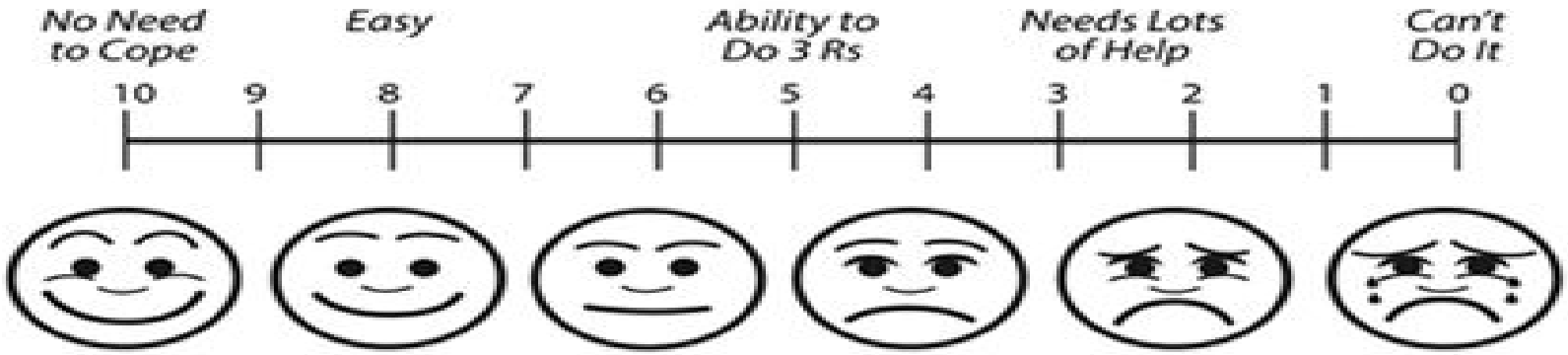
APPENDIX – XII
PAIN COPING SCALE

Purpose:

This scale will be used to measure the pain coping of the mother before and after the use of scalp acupressure during the first stage of labour.

Instruction:

Please indicate your level of coping ability during uterine contraction. The responses will be kept confidential.



Scores	Level of pain
0	Can't do it
1-3	Needs lot of help
4-6	Able to do 3R's
7-9	Easy
10	No need to cope

Hours								
Assessment of pain coping Before therapy								
After therapy								

3 R's = Relaxation, Rhythm and Ritual

tÈ jh§F msînfhŸ

neh¡f« :

ï›tsînfhŸ ãurÉ¡F« jhŒkh®fËl« Kjš f£l ãurt tÈÆ‹nghJ m¡Fãuõ® á»¢ir¡F K‹D«, á»¢ir¡F ã‹D« tÈjh§F« Ãiyia bjÇªJ¡ bfhŸs ga‹gL»wJ.

F¿¥ò :

ãurt tÈÆ‹ nghJ j§fË‹ tÈjh§F« Ãiyia F¿¥ãlî«. j§fË‹ gâšfŸ ãwÇl« g»®ªJ bfhŸs¥gl kh£lhJ.

kâ¥ÕL **tÈÆ‹ msî**

0 = braÈ‹ik

1-3 = mâf cjÉíl‹ brŒaKoí«

4-6 = 3 Éj¤âš brŒa Koí«

7-9 = vËjhf brŒa Koí«

10 = tÈ jh§F« mtáaÄši

neu«	1	2	3	4	5	6	7	8
tÈ jh§F« Ãiy á»¢ir¡F K‹								
á»¢ir¡F ã‹								

(3 Éj« : jhs«, rl§F, ïis¥ghWjš)

APPENDIX – XIII

MODIFIED WHO PARTOGRAPH

Purpose:

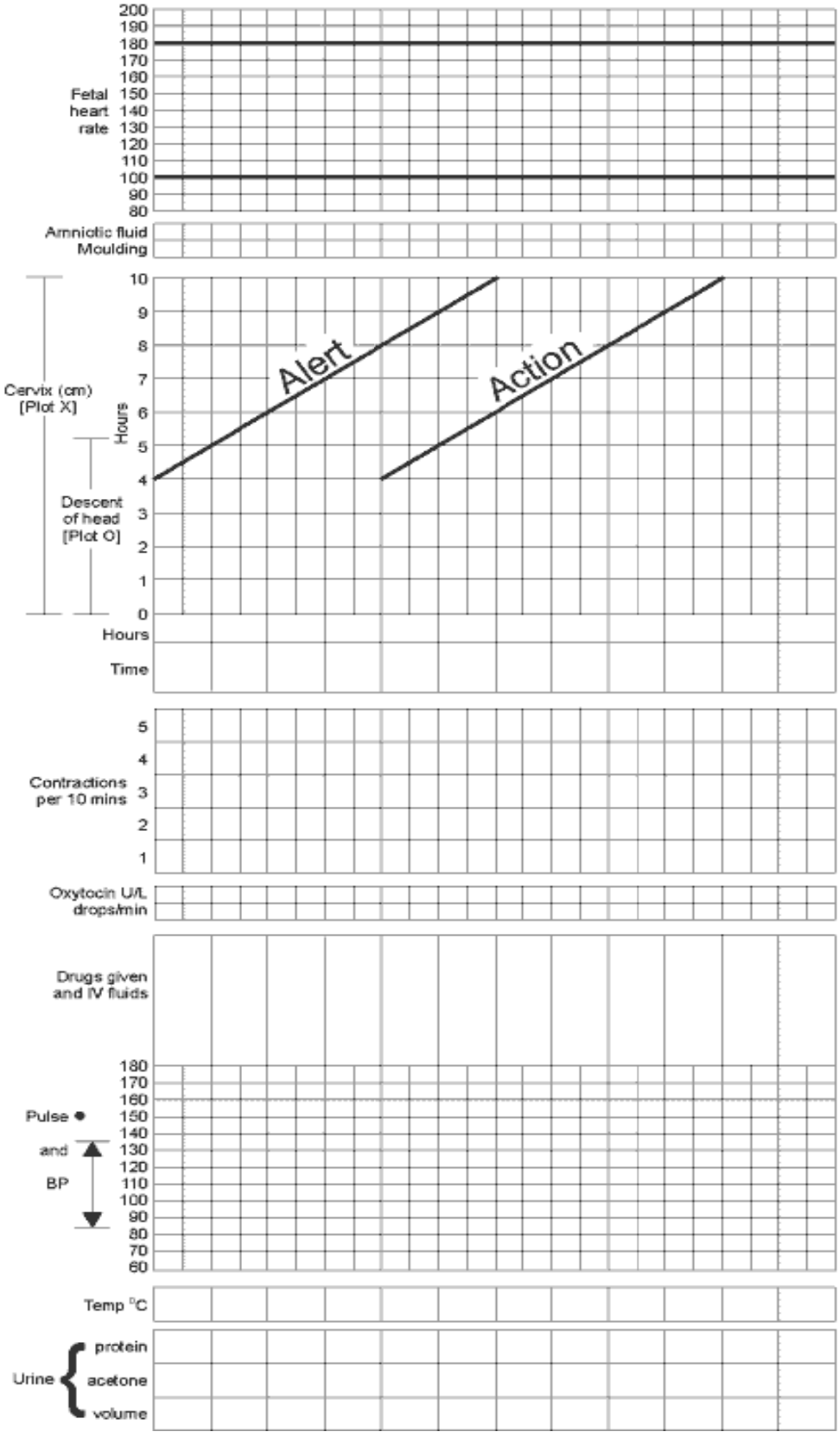
This partogram is used to record the information such as fetal heart rate, cervical dilatation, cervical effacement, contractions per 10 minutes, drugs given during first stage of labour, maternal pulse rate and blood pressure, maternal temperature, urine protein, acetone and urine volume.

Instruction:

The researcher monitors the maternal and fetal condition to record in this partogram.

Name | Gravida | Para | Hospital number

Date of admission | Time of admission | Ruptured membranes | hours



BLUE PRINT ON

RATING SCALE ON SATISFACTION OF SCALP ACUPRESSURE

UPON LABOUR PAIN

S.No	CONTENT	ITEMS	TOTAL ITEMS	PERCENTAGE
1.	Character of the investigator	1,2,3,7,8	5	50%
2.	Method of application	4,5,6	3	30%
3.	Effectiveness of the therapy	9,10	2	20%
		TOTAL	10	100%

APPENDIX – XIV

RATING SCALE ON THE SATISFACTION OF SCALP ACUPRESSURE UPON LABOUR PAIN AND COPING

Purpose:

The rating scale is used by the investigator after delivery to assess the level of satisfaction among primiparturient women on scalp acupressure and its effectiveness.

Instruction:

The rating scale consists of 10 items. Kindly read and give your responses freely and frankly and the responses will be confidential. The responses range from highly satisfied to not satisfied.

S.No	Questions	Highly Satisfied 3	Moderately Satisfied 2	Just Satisfied 1	Not Satisfied 0
1.	Are you satisfied with the prior information about the therapy given by the researcher?				
2.	Are you satisfied with the politeness of the researcher?				
3.	Are you satisfied with the presence of the investigator in need?				
4.	Are you satisfied with the method of				

	applying acupressure?				
5.	Are you satisfied with the duration of giving acupressure?				
6.	Are you satisfied with the timing of giving acupressure?				
7.	Are you satisfied with the skill of the researcher in giving scalp acupressure?				
8.	Are you satisfied with the method of evaluation by the researcher?				
9.	Are you satisfied with the effectiveness of the therapy?				
10.	Are you satisfied with the cost of the therapy used?				

KEY:

SCORE	PERCENTAGE	INTERPRETATION
<12	<40%	Low satisfaction
12 – 20	40 – 69%	Moderate satisfaction
21 - 30	70 – 100%	High satisfaction

m¡Fãuõ® á»¢irÆ‹ âU¥âia f©l¿í« msînfhŸ

neh¡f« :

ï›tsî nfhŸ ãurt¤â‰F¥ã‹ ãuÉ¤jtÇlÄUªJ m¡Fãuõ® á»¢irahš V‰g£l âU¥â Ãiyia f©l¿a MŒthsuhš ga‹gL¤j¥gL»wJ.

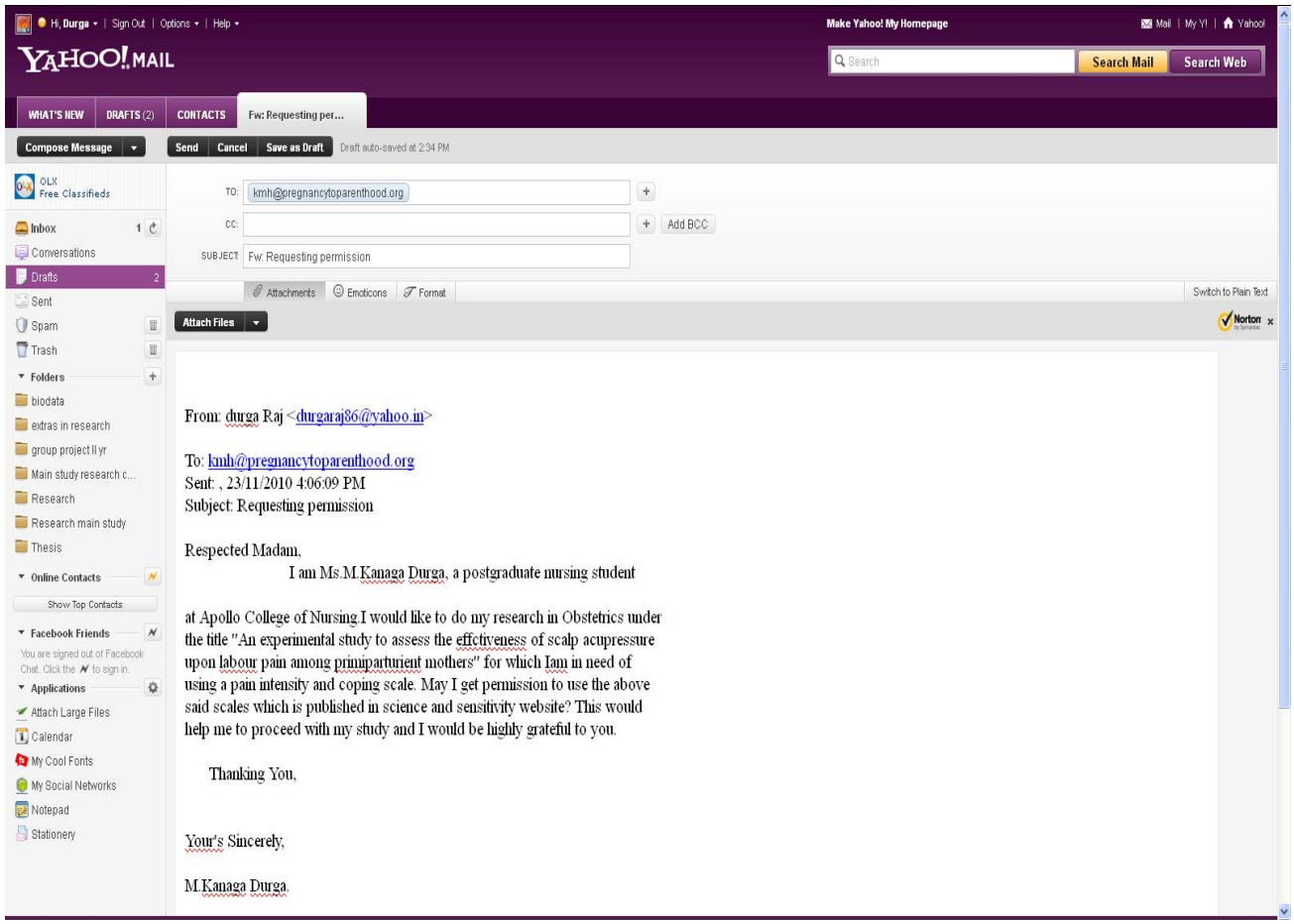
F¿¥ò :

ã‹tU« 10 Édh¡fS¡F j§fË‹ gâšfis btË¥gilahf Twî«. j§fË‹ gâšfŸ ïufáakhf ghJfh¡f¥gL«. ï›tsînfhËš gâšfŸ ÄFªj âU¥â Kjš âU¥â ïšiy v‹gJ tiu bfhL¡f¥g£LŸsJ.

nfŸÉfŸ	ÄFªj âU¥â	Äjkhd âU¥â	Xusî âU¥â	âU¥â ïšiy
1. m¡Fãuõ® bfhL¡f¥g£l fhy mtfhr« âU¥âahf ïUªjjh?				
2. MŒthsÇ‹ mQFKiw âU¥âahf ïUªjjh?				
3. njitÆ‹ nghJ MŒthsÇ‹ Jiz âU¥âahf ïUªjjh?				
4. m¡Fãuõ® á»¢ir Kiw âU¥âahf ïUªjjh?				
5. á»¢ir F¿¤J MŒthsuhš bfhL¡f¥g£l jftš âU¥âahf ïUªjjh?				

6. m¡Fãuõ® bfhL¡f¥g£l neu« âU¥âahf ïUªjjh? 7. m¡Fãuõ® á»¢ir bfhL¤jâš MŒthsÇ‹ bra‰âw‹ âU¥âahf ïUªjjh? 8. MŒths® ga‹gLâa MŒt¿¡if âU¥âahf ïUªjjh? 9. á»¢ir KiwÆ‹ gy‹ âU¥âahf ïUªjjh? 10. á»¢ir Kiw F¿¤j bryÉ‹ jftš âU¥â mË¤jjh?				

APPENDIX XV


Hi, Durga | Sign Out | Options | Help
Make Yahoo! My Homepage
Mail | My Y! | Yahoo!
YAHOO! MAIL
Search
Search Mail
Search Web
WHAT'S NEW
DRAFTS (2)
CONTACTS
Fw: Requesting per...
Compose Message
Send
Cancel
Save as Draft
Draft auto-saved at 2:34 PM
OLX
Free Classifieds
Inbox 1
Conversations
Drafts 2
Sent
Spam
Trash
Folders
biodata
extras in research
group project II yr
Main study research c...
Research
Research main study
Thesis
Online Contacts
Show Top Contacts
Facebook Friends
You are signed out of Facebook Chat. Click the to sign in.
Applications
Attach Large Files
Calendar
My Cool Fonts
My Social Networks
Notepad
Stationery
TO: kmh@pregnancytoparenthood.org
CC:
Add BCC
SUBJECT Fw: Requesting permission
Attachments
Emoticons
Format
Switch to Plain Text
Attach Files
Norton
From: durga Raj <durgaraj86@yahoo.in>
To: kmh@pregnancytoparenthood.org
Sent: , 23/11/2010 4:06:09 PM
Subject: Requesting permission
Respected Madam,
I am Ms.M.Kanaga Durga, a postgraduate nursing student
at Apollo College of Nursing.I would like to do my research in Obstetrics under the title "An experimental study to assess the effctiveness of scalp acupressure upon labour pain among primiparturient mothers" for which Iam in need of using a pain intensity and coping scale. May I get permission to use the above said scales which is published in science and sensitivity website? This would help me to proceed with my study and I would be highly grateful to you.
Thanking You,
Your's Sincerely,
M.Kanaga Durga.

APPENDIX – XVI
PLAGIARISM ORIGINALITY REPORT

	Plagiarism Detector - Originality Report
	Plagiarism Detector Project: [http://plagiarism-detector.com] Application core version: 557

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- 600 initial words analysis only
- partial plagiarism detection
- some important results are excluded
- no external file processing

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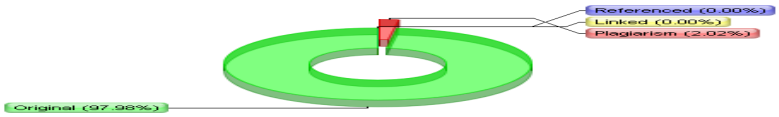
Plagiarism Detection Chart:



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Referenced 0% / Linked 0%

Original – 97.98% / 2.02% - Plagiarism

APPENDIX XVII

Manual on Scalp acupressure

Definition

Acupressure is a technique where the energies of the body are regulated by manipulating points on the body. The pressure over the key healing points is provided using fingers, palms or elbows.

Benefits of acupressure

The general benefits include

- Release of muscular tension
- Promote circulation of blood
- Aids healing
- Relieves pain improves general health

The benefits in labour includes

- Reduces labour pain
- Induces labour
- Improves coping
- Promotes good contractions
- Promotes cervical dilatation
- Aids in progress of labour with reducing the duration of labour.

Methods of applying pressure

- Rotating the thumb either clockwise or anti-clockwise on each reflex point.
- Pumping, where the thumb pad is pressed on the reflex points and released alternately.

- Continuous movement of thumb or continuous movement of the fingers
- Rubbing the reflex points or area without any pressure.
- Clutching or squeezing such as for the shoulder.
- Vibrating, where one palm is placed on another or one finger kept on another and then manual vibration given.
- Steady pressure with the thumb or fingers.
- Cupping, where the skin and underlying muscles are held in the cup of the hand and a light pressure given.

Contraindications

The acupressure should not be used in the following conditions

- Burns and infections
- Scars and injuries
- cuts, wounds, scars, bruises and directly on veins

Mechanism of action

The acupressure stimulates the peripheral nervous system and energy channels thus leading to the release of natural endorphins in the body resulting in decreased pain perception. By decreasing the blocks in the energy points, the impulse from the brain reaches the cervix leading to progress in the cervical dilatation.

Points used in the scalp to provide acupressure

Shenghi area of scalp was used covering eight points as follows. **[Note: 1 cun = 1 thumb finger breadth, 3 cun = 4 fingers breadth]**

GB 16:

3 cuns from midpoint of eyebrow.

BL 5:

One cun from front hair line

GB 18:

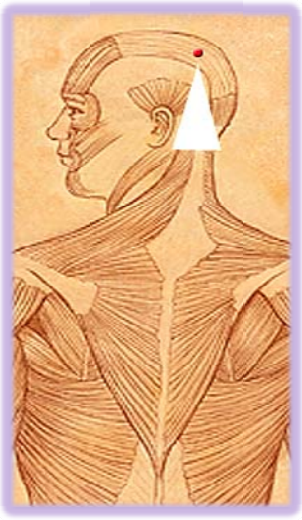
6 cun from midpoint of eyebrow.

GV 20:

5 cun from anterior hair line

BL 8:

5.5 cun from front hairline



GB 8:

1.5 cun above the hair line directly above the apex of the ear.

GV 17:

2.5 cun from posterior hair line

BL 9:

1.5 cun lateral to GV 17.

APPENDIX – XVIII
DATA CODE SHEET

EG – Experimental group

AGE – Age in years

1.1 $\leq$ 19 years

1.2 20 – 24

1.3 25 – 29

1.4 $\geq$ 30

EDN – Educational Qualification

2.1 Non – literate

2.2 Primary education

2.3 Secondary education

2.4 Graduate

2.5 Post graduate

OCC – Occupation

3.1 Home makers

3.2 Employed

TOW – Type of work

4.1 Sedentary worker

4.2 Moderate worker

4.3 Heavy worker

AOR – Area of residence

5.1 Rural

5.2 Semi – urban

5.3 Urban

TOF – Type of Family

6.1 Nuclear

6.2 Extended

6.3 Joint

FH – Food habits

7.1 Vegetarian

7.2 Non – vegetarian

PK – Previous knowledge about acupressure

8.1 Yes

8.2 No

GA – Gestational age in weeks

1.1 37 – 38

1.2 39 – 40

1.3 41 – 42

ANV – Number of antenatal visits

2.1 No visit

2.2 $\leq$ 4

2.3 $\geq$ 5

PMG – Pain management during labour

3.1 Epidural analgesia

3.2 Systemic analgesia

3.3 Inhalation analgesia

3.4 Combined analgesia

3.5 None

TOD – Type of delivery

4.1 Normal vaginal delivery

4.2 Vacuum delivery

4.3 Forceps delivery

4.4 Lower segment caeserean section

DOF – duration of first stage of labour

5.1 < 10 hours

5.2 10 – 14 hours

5.3 > 14 hours

DOS – Duration of second stage of labour

6.1 < 1 hour

6.2 1 hour – 2 hour

6.3 > 2 hour

DOT – Duration of third stage of labour

7.1 < 10 minutes

7.2 10 – 20 minutes

7.3 > 20 minutes

APG – Apgar score of the newborn

8.1 < 3

8.2 4 – 6

8.3 7 – 10

BW – Birth Weight of the newborn

9.1 < 2 kg

9.2 2 – 2.5 kg

9.3 2.5 – 3 kg

9.4 > 3 kg

BT – Before therapy

AT – After therapy

CD – Cervical dilatation

UCF – Uterine contraction frequency

UCD – uterine contraction duration

MBP sys – Maternal Blood Pressure (systolic)

MBP Dias - Maternal Blood Pressure (Diastolic)

FHR – Fetal heart rate

MHR – Maternal heart rate

LOS – Level of satisfaction

APPENDIX - XIX

Master Coding Sheet for Control Group

CG	Demographic variables								Obstetric variables									Pain		Coping		Feto Maternal parameters											
	AGE	EDN	OCC	TOW	AOR	TOF	FH	PK	GA	ANV	PMG	TOD	DOF	DOS	DOT	APG	BW	BT	AT	BT	AT	CD	UCF		UCD		MBP sys		MBP Dias		FHR		MPR	
																							BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	1.2	2.4	3.1	4.2	5.3	6.1	7.2	8.1	1.1	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	8	8.1	4.5	1.6	6.4	3.8	3.8	35	36	115	116.2	75	73.7	144.5	144.5	85	96
2	1.2	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.2	3.5	4.1	5.2	6.1	7.2	8.3	9.4	7.8	8	5	1.7	6.8	3.6	3.8	32	32	115	116.2	75	75	133.2	134	88.7	87.5
3	1.2	2.4	3.1	4.2	5.3	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.6	5.5	5.6	4	6.5	3.6	3.8	28	28	115	113.7	75	73.7	135.2	134.5	91	91.3
4	1.2	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.2	8.3	9.4	7.3	7.7	5.5	1.5	6.8	3.6	3.7	43	42	116.2	115	76	74	134.7	135	89	88.5
5	1.3	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.6	8.3	4.6	1.7	6.2	3.2	3.6	42	40	115	115	75	76	135.7	135	88.7	88
6	1.2	2.3	3.1	4.2	5.3	6.1	7.2	8.2	1.2	2.2	3.5	4.1	5.2	6.1	7.2	8.3	9.2	7.7	8.2	4.7	4.5	7	3.3	3.6	38	40	115	113.7	75	73.7	136.7	138	89.5	86
7	1.2	2.3	3.1	4.2	5.2	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.7	8.2	5.5	2	6.5	3.5	3.6	40	42	115	116	71.6	73	137.6	138	88.3	86.3
8	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.3	7.8	5.8	1.5	7.5	3.3	3.8	42	44	116.2	114.2	73.7	73.7	142.5	144	89	88
9	1.2	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.7	8.2	6	1.5	6	3.2	3.4	46	44	115.7	113.8	71.4	72	140.8	142	82.5	81.4
10	1.3	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.2	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	8.7	4.5	1.5	6.5	3.5	3.6	45	46	116.6	118.3	73.3	73.3	140.3	140.3	84.6	83.3
11	1.2	2.4	3.2	4.2	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7	8.2	6	1.5	7	3.5	4	46	48	115.7	115.7	74.2	74.2	143.7	144.8	86.8	85.4
12	1.3	2.3	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	5.6	5.3	5.5	4.5	7.8	3.8	4	41	43	116.6	115	75	75	136	134	85	85
13	1.3	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.3	6.1	7.1	8.3	9.4	7.6	8.2	5	1.5	7	3.3	4	48	50	115	113.7	73.7	73.7	145.7	145.5	85.7	87
14	1.2	2.4	3.2	4.1	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.2	7.8	5.8	1.7	6	3.1	3.4	40	42	116.2	116.2	75	73.7	145.7	147	91	90.5
15	1.3	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	8.8	6.8	4	6.2	3.8	3.6	47	50	114	112	78	76	145.2	146.4	89.2	88.4
16	1.4	2.3	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.2	8.3	9.2	7	8.4	5.5	1.5	6.6	3.2	4	43	45	114.2	115.7	75.7	75.7	146.2	146.8	90.5	88.8
17	1.2	2.4	3.1	4.2	5.3	6.1	7.2	8.2	1.2	2.3	3.5	4.4	5.2	6.1	7.1	8.3	9.4	7.5	8.3	5	1.8	6.4	3.6	3.7	38	42	115	113.3	73.3	75	144.6	145	86.3	87
18	1.3	2.5	3.2	4.1	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.5	6	4.6	4.2	6.4	3.5	3.3	38	41	113.3	113.3	75	75	145.6	144.6	85.6	86
19	1.3	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.5	8.3	4.8	1.1	6	3.5	3.7	42	45	113.3	113.3	73.3	73.3	145.6	145.6	86	85
20	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.3	6.2	7.1	8.2	9.2	7	8	4.7	1.6	6	3.7	3.9	40	42	127.5	127.5	81.2	83.7	143.2	135	98.5	98
21	1.2	2.4	3.1	4.2	5.3	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.2	7.5	8.3	6	1.1	6.2	3.1	3.4	43	45	115	113.3	75	73.3	146.3	148.3	90.6	89

22	1.3	2.3	3.1	4.2	5.2	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.2	8.3	9.2	7.5	8.1	6.5	1.8	6	3.5	3.7	42	45	115	113.3	75	75	144	146	88.3	87
23	1.2	2.3	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.2	7.5	8.1	6.2	1.6	6.2	3.5	3.7	43	45	113.3	111.6	73.3	73.3	149.3	149.3	88.3	89
24	1.2	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.2	7.5	8.3	5	1.3	6.4	3.3	3.5	43	45	120.5	120.5	73.3	73.3	144.3	146.6	87	87
25	1.2	2.3	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	8	8.8	5.5	1.6	6.5	3.5	3.3	40	43	113.3	113.3	73.3	73.3	150.3	149.3	86	85
26	1.2	2.4	3.1	4.2	5.2	6.2	7.2	8.1	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	6	8	4.5	1.5	7	3.8	3.6	50	56	117	117	76	74	139	137	90	90
27	1.3	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.1	8	5	1.5	6.2	3.7	3.7	50	52	114	114	71	74	137	138	84	85
28	1.2	2.4	3.1	4.2	5.2	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.2	8.3	5.5	1.4	6	3.8	4	42	44	114	114	74	74	132	133	84	86
29	1.2	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.1	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.1	8.3	5.5	1.8	6.4	3.6	3.8	48	50	110	110	71	71	146	147	87	85
30	1.2	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	8	8.7	6	1.7	6.3	3.7	4	44	46	114	112	74	72	133	130	90	92

Master Coding Sheet for Experimental Group

EG	Demographic variables								Obstetric variables									Pain		Coping		Feto Maternal parameters												LOS
	AGE	EDN	OCC	TOW	AOR	TOF	FH	PK	GA	ANV	PMG	TOD	DOF	DOS	DOT	APG	BW	BT	AT	BT	AT	CD	UCF BT	UCF AT	UCD BT	UCD AT	MBP sys BT	MBP sys AT	MBP Dias BT	MBP Dias AT	FHR BT	FHR AT	MPR BT	MPR AT	
1	1.2	2.4	3.1	4.2	5.3	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	6.4	1.8	3.6	7	3.8	3	33	38	115	115	78.3	78.3	135.3	135	89.6	89.3	27
2	1.3	2.4	3.2	4.2	5.3	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.8	6.1	1.5	3.6	7.4	4	3.1	31	38	113.3	115	75	73.3	137	137	88.6	89	26
3	1.3	2.4	3.2	4.2	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.6	5.5	1.8	3.6	7	4	3.1	40	48	116.6	116	76.6	76	140	140.3	87	87	27
4	1.2	2.3	3.1	4.1	5.3	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	7.5	7.3	1.5	1.3	7.2	4	3	42	50	115	116	75	74	139	138.6	86	87	25
5	1.2	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8	6	1.8	3.6	7.5	4.2	3.2	45	52	116	116	74	74	136.4	138	82.4	83	25
6	1.2	2.4	3.1	4.2	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8.5	6.1	2	4	7.2	4.1	3.1	41	50	115	113.3	75	71.6	137.6	138	88.6	84	26
7	1.3	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.2	7.5	5.1	1.8	4	7.5	4.1	3.1	40	50	115	114	75	73	139	141	90.3	86	23
8	1.3	2.4	3.1	4.2	5.3	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8	6	2	4.2	7.6	4.2	3.2	43	50	116	112	74	72	140	143	82.8	81.2	25
9	1.2	2.4	3.1	4.2	5.2	6.2	7.2	8.2	1.2	2.2	3.5	4.1	5.1	6.1	7.1	8.3	9.4	7.5	5.5	1.7	4.5	7.6	4.1	3	43	51	115	115	73.3	71.6	139	139	83	85	25
10	1.2	2.3	3.1	4.2	5.1	6.3	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8	5.2	1.8	3.8	7.3	4.4	3.2	44	53	122	116	76	74	140.4	141	86	82	25
11	1.3	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.4	2	4	7.6	4.4	3.2	41	52	114	112	74	74	138.8	139.6	84	82.4	22
12	1.3	2.5	3.2	4.1	5.2	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8	5.2	2	4.2	7.8	4.2	3.2	40	48	118	114	74	78	142.8	134	84	85.6	21
13	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	4.2	7.6	4.4	3.2	46	53	116	114	76	72	144.4	143.6	86.8	84.8	22
14	1.3	2.4	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8	5.4	2	4.2	7.2	4.2	3.4	44	51	114	112	72	70	145.2	144.4	83.2	83.2	20
15	1.2	2.4	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8.5	5.7	1.5	3.7	7	4.5	3.5	43	50	112.5	112.5	72.5	75	142.5	145	81	84.5	20
16	1.3	2.4	3.2	4.1	5.3	6.1	7.2	8.1	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	6	2	3.8	7.2	4.4	3.6	42	47	116	112	74	72	144.4	145	86.4	86.4	20
17	1.2	2.4	3.1	4.2	5.3	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.4	8.5	5.7	1.5	4	8	4.5	3.5	44	52	115	115	75	77.5	148	148.5	88	87.5	21
18	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	5	7.8	4.4	3.6	42	51	116	112	76	72	145.2	146	86	82.4	19
19	1.2	2.4	3.2	4.1	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	5	7.5	4.2	3.4	38	47	116	114	76	74	147.2	146.4	86.4	87.2	26
20	1.2	2.3	3.1	4.2	5.1	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	5	7.4	4.2	3.2	41	48	116	114	74	72	145.2	146	85.2	84.4	28
21	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	4.2	7	4.2	3.2	42	50	114	112	74	74	144	144.8	85.2	86	24
22	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	4.8	2	4.8	7.4	4.2	3.4	40	48	116	114	74	74	146	146.4	88.4	86	24

23	1.2	2.3	3.1	4.1	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	7.5	7	2	1.2	7.5	4.1	3.3	42	52	113.3	113.3	71.6	71.6	145.6	146.3	87.6	85.6	28
24	1.2	2.3	3.1	4.2	5.1	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	4.8	2	4.8	8	4.4	3.2	41	50	114	112	74	74	145.2	146.4	87.6	86	27
25	1.2	2.4	3.1	4.2	5.3	6.3	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.3	8	5.2	2	5	7.6	4.2	3.4	44	52	114	114	72	74	148.8	149.2	84.8	86	27
26	1.3	2.4	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.2	6.1	7.1	8.3	9.3	7.1	7.5	2.2	2	7	3.7	3.4	44	52	111	111	70	71	136	138	84	85	23
27	1.2	2.3	3.1	4.2	5.2	6.1	7.2	8.1	1.2	2.2	3.5	4.1	5.1	6.1	7.1	8.3	9.2	7	5.2	2.5	2.7	7.4	3.9	3.1	42	52	117	117	73	77	140	139	88	89	22
28	1.2	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.2	7.5	5.3	1.8	4	7.6	3.8	3.3	38	48	110	112	75	75.3	140	139	86	88	21
29	1.3	2.3	3.1	4.2	5.2	6.1	7.2	8.2	1.1	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.2	7.3	5.2	2.2	4.5	7.8	3.7	3.2	46	54	116	116	72	71	141	140	84	84	26
30	1.2	2.4	3.1	4.2	5.2	6.2	7.2	8.2	1.2	2.3	3.5	4.1	5.1	6.1	7.1	8.3	9.2	8.1	5.5	1.6	4	7.6	3.8	3.1	40	50	113	113	78	78	130	131	90	90	24